Gleanings in Bee Culture

Established 1873

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May, 1939

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Again we have new

Carloads

of new Root Quality bee supplies ready for your orders. Now is the time to plan and make ready for the season just ahead. Satisfaction and profits alike result through early preparation.

This office endeavors always to be responsive to the needs of beekeepers. We gladly care for your subscriptions to bee journals—your orders for bees and queens and your orders for supplies. Write us about your needs. We gladly quote on your list of supplies needed.

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Chicago, Illinois

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WHY?

Because they are of—

Uniform and accurate dimensions, and of the Finest Materials,

They have—

Glossy Polish,
Smooth Dovetails,
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Let us supply you at once!

Write for prices on quantities, and special size sections.

August Lotz Company
Boyd : : : Wisconsin

To New York State Beekeepers:

The Chinese say, "Things that are cheap are not cheap. Things that are expensive are not expensive."

THE BEST IS ALWAYS THE CHEAPEST

If you are interested in saving money, buy ROOT-QUALITY bee supplies and Airco THREE-PLY foundation.

Root bee supplies make beekeeping easier, and the larger brood area you get by using Three-Ply foundation means more bees; more bees mean more honey, and more honey means MORE MONEY FOR YOU.

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SERVES YOU BEST

For **Exceptional Quality**
at a Reasonable Price get

Schmidt's Economy Comb Foundation

Try it, and be convinced.

Manufactured by

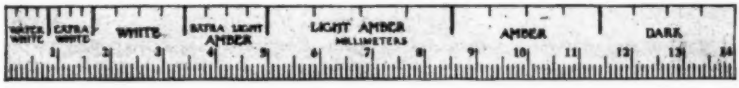
Oscar H. Schmidt
Rt. 4 Bay City, Mich.

The Brand Capping Melter

SUCCESS IS DUE TO THE UNDER THE MELTER UNIT FEEDING. THE BRAND MELTER HAS MADE ALL OLD STYLE TOP FEEDING MELTERS OBSOLETE.

Here are tests made by Michigan State officials on samples of honey gathered during the extracting season of 1938, from locations where the Brand Capping Melter was in actual use. Tank honey means that the melter honey was run in with the extractor honey.

			Pfund grader	Refractometer
Running	Extractor	honey	Water white .5	18.5% moisture
Running	Melter	honey	Extra white 1.0	18.1% moisture
Rink	Extractor	honey	Extra white .9	18.8% moisture
Rink	Melter	honey	Extra white 1.4	19.1% moisture
Rink	Tank	honey	Extra white 1.1	18.7% moisture
Barrett	Extractor	honey	Water white .1	19.0% moisture
Barrett	Melter	honey	Water white .5	18.7% moisture
Barrett	Tank	honey	Water white .3	18.4% moisture
Grauer	Extractor	honey	Extra white 1.0	18.8% moisture
Grauer	Melter	honey	Extra white 1.1	19.1% moisture
Grauer	Tank	honey	Extra white .9	18.6% moisture
Monro	Tank	honey	Water white .3	18.3% moisture
Potter	Extractor	honey	Water white .2	18.1% moisture
Potter	Melter	honey	Water white .3	18.2% moisture



These hair-splitting tests show that honey gathered in apiaries a few miles apart or even from different hives in the same apiary, often show more variation than the use of the Brand Melter will bring about.

Several extensive Minnesota honey producers have discarded Wheel Cappings Dry While you Uncap Devices, for the Brand Melter. A letter from Mr. Ramsay at Neche, N. Dak., dated 3/25/39, contained the following:

"My early model Brand Melter has been most satisfactory in every way. Honey bottled from it and the unheated from the settling tank have passed several testing tests with testers unable to detect any difference in taste or color." (We did not know that Mr. Ramsay owned a Brand Melter.)

The above is the general opinion of those out in the field of practical experience, that use and know Brand Capping Melters.

In East U. S.
A. G. Woodman Co.,
Grand Rapids, Mich.

In Canada
S. P. Hodgson & Sons
New Westminster, B. C.

West U. S.
Superior Honey Co.
Ogden, Utah

Kelley—"The Bee Man"

QUEENS
50c each

We breed light 3-banded Italians only. Years of experience. 100 queens daily. We always have hundreds of queens on April 1st. You can depend on us for service. Write for special prices on 25 or more swarms.

The Walter T. Kelley Co., Paducah, Ky.

Said and Done

When it's all "said and done" a comparison of our low prices and high quality will make you a "Muth Satisfied Customer."

—5 GOOD REASONS—

1. ALL ORDERS FILLED THE SAME DAY.
2. THE SAVING IN PRICE WILL MORE THAN PAY FREIGHT CHARGES.
3. HIGHEST QUALITY LUMBER AND WORKMANSHIP.
4. LOWEST PRICE ON COMB FOUNDATION.
5. MUTH "ULTRA VIOLET RAY TREATED QUEENS."

If you haven't our 1939 catalog, write before you buy. See page 5 of our catalog. There's a surprise for you.

We work wax into comb foundation.

We will buy your wax and honey, also render your old comb and cappings.

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"Beemen since 1858"

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The heaviest and most dependable construction ever offered in honey extractors. No orders come to us for repair parts.

THREE DEFINITE MAXIMUM SPEEDS—Everything in speed control, so necessary in most efficient Radial extracting.

The Friction Adjuster adjusts the friction drive to a thousandth part of an inch, regulating slow or fast pick-up of Reel speed to three definite maximum speeds. Seldom changed when once set for the temperature of the day.

One outfit used 5 of our 50-Frame Radials in line in a central extracting plant which extracts the honey from 5000 of their 7000 colonies. They produced well over a million pounds in 1938. They use Brand Melters. Another producer with 4 big Radials, 2 Brand Melters, 2 Merry-Go-Rounds, 4 men per 10-hour day, 4 men per 10-hour night, averaged to extract 30,000 pounds of honey every 24 hours for more than 25 days.

Ten different styles and sizes of extractors offered for any requirement.

Send for printed matter.

A. G. Woodman Co., Grand Rapids, Mich., U.S.A.

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Package Bees and Queens

Prepared to give **RUSH ORDERS** prompt attention.
—From one of Alabama's largest shippers—

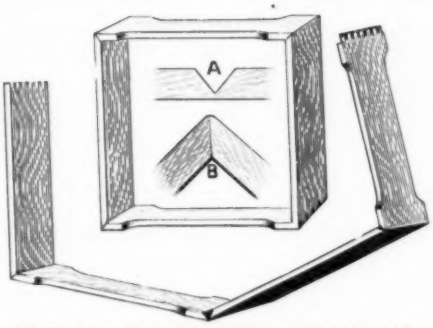
A Large Supply—Young Worker Bees—Select Laying Queens—Fresh From Our Yards—Well Ventilated Crates—Full Weight in Bees—Prompt Attention To Orders—Fast Service Assured—Now Regularly Shipping.

For package bees express collect your end—Queens prepaid—

2 Lb. Package with queen each	$1.75
3 Lb. Package with queen each	2.25
2 Lb. Package without queen each	1.25
3 Lb. Package without queen each	1.75
For each additional Lb. bees each	.50
Tested queens each	1.00
Untested laying queens each	.50

Prices listed net to us for any number needed.
For Parcel Post shipments add P. P. charges.

Holder Apiaries, Citronelle, Alabama



Made from the whitest Wisconsin basswood.

Sections
$9.00
per 1000

Price of No. 1 grade, beeway style.

Sections split 3 sides $1.00 per 1,000 additional.

Write for free descriptive catalog.

The Walter T. Kelley Co.
Paducah, Kentucky
Manufacturers of Bee Supplies.

The Monthly Honey Market

TOO LATE TO CLASSIFY

FOR SALE—Root 20-frame Simplicity extractor like new, $65.00; Briggs & Stratton 1-H. P. Gasoline air-cooled motor, with gear reduction, late model and used very little, $45.00; Root-Cowan 2-frame hand reversing extractor slightly used, $12.50. Fred D. Lamkin, Union Springs, N. Y.

CALIFORNIA BEE TOOL CO.,
810 W. Pedregosa St., Santa Barbara, Calif.
Practical Useful B. B. Pliers and Hive Tool Combined. Quick work, best frame lifter and holder. Indispensable in prying supers and frames. Strong and durable for heavy service but light to handle. Price $1.00.

LOOK Three-banded Italian bees and queens that are real honey gatherers and very gentle to work with. They work fine in cool damp weather. Health certificate with each shipment. Satisfaction Guaranteed.

ALAMANCE BEE COMPANY
Geo. Elmo Curtis, Mgr.
Graham, N. C.

U. S. GOVERNMENT REPORT
Information from Producing Areas (last half of March).

California Points: Southern California—The weather has been generally unsettled, with considerable cloudiness in the south, especially along the coast line. Near the close of the period some rainfall occurred in most southern localities. The beekeepers feel that more rain is needed to have a honey crop assured, though plants are not particularly suffering now. Alfilaria is coming out well and bees are busy on dandelion, mustard, cottonwood and late eucalyptus in cultivated areas, and in the hill sections on buckthorn, willows, manzanita and early annuals. Although pollen is plentiful honey stores are getting short and many beekeepers are feeding. Due partly to the effect of frost on early buds orange bloom is expected to be several weeks late and it may be May 1 before bees make much money from this source. Sage is also backward, and many colonies are being moved to orange locations.

SUMMARY—The last week of the month was abnormally warm almost everywhere, and though the Mountain States westward were warm during the first week of the period the remainder of the country was abnormally cold, with frost extending to southern Georgia and Alabama. With this variable temperature it

Berry's Reliable Italian Bees and Queens

3-Banded Queens **3-Banded Italian Package Bees**

After May 10th.
Greatest Honey Gatherers, Gentle and Disease Resistant
None so Good

2-lb. Pkgs. with Selected Queens, any number ..... $1.50 each
3 lb. Pkgs. with Selected Queens, any number ..... 2.00 each
Additional pounds add 50c each.
Selected Untested Italian Queens ..... .50 each

After 45 Years of Select Breeding our strain is Unsurpassed for Honey Production. We have found none after test as good for bringing in the honey.
Safe arrival and entire satisfaction we guarantee.

M. C. BERRY & CO., Box 684, Montgomery, Alabama

Package Bees for May Delivery

Most package shippers have a surplus of bees for packages this Spring. Everything at the present time seems favorable to the buyer. My shippers in the Gulf states have plenty of bees, plenty of time and help to get your package off at once. And the best news for the buyer of package bees, is, the price is in your favor. Listen: a Three-pound package of Italian bees, with a caged Untested queen, at only $2.25. And did you ever hear of such a thing as buying a Four-pound package of bees, with Untested queens for only $2.75 each? Just think of it, only Two dollars and Seventy-five cents for a four-pound package of bees with queens. And, **besides this,** if you ask it, we can ship you packages with an introduced queen, at the same price. A "loose-queen" package that goes a long ways toward preventing supersedure of queens.

Two of my shippers in Alabama have a great lot of Black bees. Listen to this: They will put up good full-weight packages of these blacks, cage a pure Italian queen (reared in a separate yard), and express them to you, in lots of 10 or more, listen carefully, for around $2.25 each package. Think of it, a 4-pound package of black bees, with pure Untested queens, for around $2.25 each. The actual price that I can furnish you with these black bees, will be furnished upon request, stating the number of packages you will be in the market for, and when you want them delivered. The writer is a Broker of package bees, and buys up surplus package bees (of which there are many this season) at a very reasonable price. You get the benefit of my buying power, as I am passing the difference along to you. Can we ship you some of these cheap packages of bees? I hope so. Write me.

E. D. Townsend,
Northstar, Michigan

has been difficult for beekeepers to know when to remove bees from the cellar. Most outdoor-wintered colonies have flown during a portion of the period. Winter losses appear to have varied more widely than usual even in the same State. This was due not only to the heavy consumption of stores during the mild winter, but to the wide variation in the quality of the stores and also to the fact that many colonies entered the winter period with an insufficient number of young bees. Because of the low prices prevailing for honey during the past season many beekeepers in the North who would normally purchase package bees are now planning to depend upon colony division to replace their losses. Occasional package beemen report a fair volume of orders, but the price-cutting policy of some of the larger package beemen is discouraging to the package bee industry generally. Cool weather has hampered queen rearing in parts of the South, but other queen breeders report that the weather has been ideal for queen mating.

The honey market situation shows little indication of improvement, although in occasional areas where stocks of honey are light inquiry on the part of large buyers has recently been increasing. Sales of honey at retail appear to have fallen off somewhat during this period except where price cutting was resorted to in an effort to increase sales. Some packers report good business but this has often been aided by reduced prices. In some markets the retail price of honey in glass has dropped recently as much as 3 or 4c per lb. Occasional beekeepers, and in fact occasional areas, are well sold out of honey, but in general a carryover appears likely and in some sections a substantial carryover. Remaining lots of comb honey are in light demand. Beeswax is firm and in some areas appears to be on a slightly upward trend.

Monthly Report of Honey Producers

Early in April we sent the following questions to honey producers: 1. What is your estimate, revised to date, of the amount of last year's honey crop not yet sold in your locality? Give answer in per cent. 2. At what price has honey been sold or contracted for, if any, in large lots (carload or less) in your locality during the past month for (a) extracted honey, per pound? (b) comb honey, fancy and No. 1, per case? 3. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per case? 4. What is the retail price to consumers in your locality of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey; fancy and No. 1, per section? 5. How is honey now moving on the market in your locality? Give answer in one word, as slow, fair or rapid. 6. What is the condition of the honey plants at this time in your locality, as compared with the average? Give answer in per cent. 7. What is the present condition of the colonies, as compared with normal, considering the number and age of the bees and the supply of stores? Give answer in per cent. 8. What is the per cent of winter and spring loss to date (if any) in your locality? The answers returned are tabulated as follows:

State	Name	1938 Hold-over	Carload lots. Ex.	Comb.	To grocer. Ex.	Com.	To retailers. Ex.	Comb.	Move-ment.	Cond. honey plants.	Cond. of colo.	Pct. Win. loss.
S-Ala.	(J. Clay Dickman)	5			.30		.40		Slow	100	100	
B. C.	(A. W. Finlay)	35	.08¾		.55		.75		Slow	100	100	20
S-Calif.	(L. L. Andrews)	5	.04				.57	.18	Fair	75	100	5
C. Calif.	(Davis Bros.)	10	.03¾				.50	.20	Slow	50	70	2
SE-Colo.	(Otis E. Adcock)	30			.40		.49		Slow	100	80	2
E-Conn.	(Allen Latham)	10			.75		1.00		Slow	100	75	6
S-Fla.	(C. C. Cook)	20	.05		.35		.50		Slow	100	100	5
C-Fla.	(Harry Hewitt)	5			.50		.65		Fair	100	100	2
SE-Ga.	(J. J. Wilder)	3	.05½		.50		.60		Fair	80	60	15
NC-Ills.	(A. L. Kildow)		.05½	2.00	.50	2.50	.60	.13	Slow	95	100	0
S-Ills.	(Carl E. Killion)		.06	3.00	.45	3.50	.66	.16	Fair	100	100	
NC-Ind.	(T. C. Johnson)	50			.50	3.00	.60	.18	Slow	100	100	2
NW-Ind.	(E. S. Miller)	30			.50	3.00	.65	.15	Slow	100	100	5
W-Iowa	(W. G. Brown)	10							Fair	100	110	
N-Me.	(O. B. Griffin)	0				4.75		.29	Slow	100	85	
C-Md.	(S. G. Crocker)	10						.25	Slow	90	100	5
N-Mich.	(Ira D. Bartlett)	8			.48	3.25	.60	.18	Fair	100	90	
E-Mich.	(L. S. Griggs)	15	.04¾		.35		.50	.17	Fair	100	100	10
C-Mich.	(E. D. Townsend)	40	.06						Slow			
W-Minn.	(B. L. Morehouse)	30	.05		.45		.60		Fair	95	95	5
E-Minn.	(Floyd W. Ray)	10	.05		.40		.49		Slow	100	110	4
W-Nev.	(Mrs. E. G. Norton)		.04½						Slow		80	20
W-Nev.	(Geo. G. Schweis)	25	.04½				.45	.18	Slow	75	90	
W-N. M.	(C. A. Baltzley)	0			.45	3.00	.65	.20	Fair	100	75	25
NW-N. Y.	(Geo. B. Howe)	30			.40		.55	.20	Slow	90	100	
C-N. Y.	(F. W. Lesser)	35	.06½		.45				Slow	100	100	3
SE-N. C.	(W. J. Martin)	10	.06		.60		.80	.20	Fair	80	90	5
C-Ohio	(R. D. Hiatt)	25			.45	3.50	.65	.19	Slow	100	100	
NC-Okla.	(C. F. Stiles)	0			.45		.65		Fair	90	85	5
W-Ore.	(H. A. Scullen)	35			.38		.45	.17	Slow	100	100	2
C-Pa.	(Harry Beaver)	20	.05		.50		.60		Slow	90	90	
SE-Pa.	(D. C. Gilham)	25			.70	4.00	1.00	.25	Slow	100	90	7
W-S. C.	(E. S. Prevost)	0			.18		.20		Fair	100	80	10
SE-S. D.	(J. F. Norgren)	8			.42		.55	13	Fair	85	100	10
C-Tenn.	(J. M. Buchanan)	0					.75	.20	Slow	100	90	1
E-Tenn.	(W. L. Walling)	0					1.00		Fair	100	100	0
C-Texas	(T. A. Bowden)	5			.45		.55		Fair	80	100	2
S-Texas	(H. B. Parks)	5	.05		.48		.55		Slow	80	95	3
N-Utah	(W. H. Hendricks)				.43		.49		Slow	100	100	50
W-Vt.	(Phillip Crane)	5		3.87	.72	4.25	.90	.28	Slow	100	98	
SC-Wash.	(Chas. Higgins)	5	.05½				.44		Fair	100	100	5
N-W. Va.	(W. C. Griffith)	0			.35	3.45	.50	.18	Slow	100	100	0
SE-Wisc.	(N. E. France)						.55	.14	Slow	100	100	
N-Wyo.	(Earl C. Reed)	30			.45		.55		Fair	100	90	10

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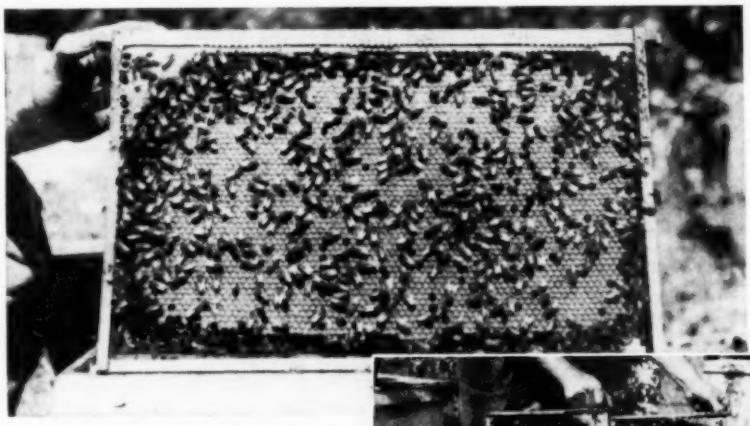
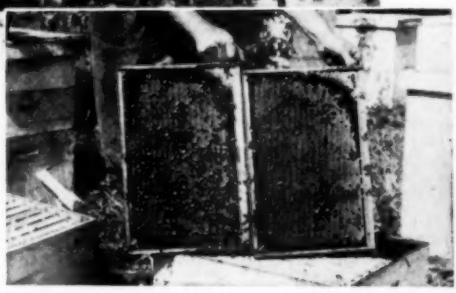


BROOD

And we mean BROOD



For Brood Means Bees And Bees Mean Honey For Years and Years

"Dadant's Crimp-wired Foundation is a real investment and the man who uses a common, cheaper kind, pays more for it in the penalty of poor combs than several times the difference in the cost of the foundation. If I were privileged to give the best advice I know of to the beekeepers of the country, I would tell them to use Dadant's Crimp-wired Foundation in all their brood frames."

George J. Brown
Fresno, California

Thanks, Mr. Brown, we could not have said it that well ourselves. When you get combs like these three, with brood from side to side and from top to bottom, they turn out thousands of bees to make record crops in your supers. The slight extra cost of Dadant's Crimp-wired Foundation is lost in profit after profit; in large colonies, in heavy supers, in combs that serve you long after less substantial ones are gone or replaced. You too will find, like many others, that Dadant's Crimp-wired Foundation makes combs that do so much and cost so little.

When You Plan Your Foundation Buying
Consider What this Means to You.

Dadant & Sons, Hamilton, Ills.

IN HEAT OR COLD • THE CRIMPS WILL HOLD •

Makers of Famous Foundations

Crimp-wired
Plain Surplus

Vol. 67
No. 5

Gleanings
in Bee Culture

May
1939

Insect Pollination of Orchard Fruits

W. E. Dunham
Extension Specialist in Bee Culture for Ohio

Orchardists Must Have Honeybees to Insure Necessary Pollination for Normal Fruit Crops

Two-story colonies insure dependable pollinating service.

Fruit varieties which do not form seed or set fruit from their own pollen when self-pollinated are termed self-sterile and are dependent on cross-pollination to insure fruit set. The self-fertile varieties are those which when self-pollinated set fruit and produce seeds which are viable.

Among the fruits, apple and sweet cherry varieties serve as the best examples of self-sterility. When these fruits are grown, compatible varieties must be present in order that effective cross-pollination occur. In cases where there are two or more varieties and cross-pollination has taken place with no resulting fruit set, it is an indication that such varieties are inter-sterile. Practically all pear varieties are self-sterile although there are greater fluctuations in the degree of sterility than in apples and sweet cherries. Plums of Japanese stock are mostly self-sterile while those of European origin show a greater tendency to be self-fertile. Sour cherries, peaches, and the smaller fruits, such as blackberries, raspberries, and dewberries, are practically all self-fertile but need insects to insure self-pollination.

It is generally well understood that with self-sterile varieties of fruits an adequate insect population is necessary to insure effective cross-pollination. However, with the self-fertile groups there is a common misconception that pollination occurs without the presence of insects. This is not the case, for in most instances if a profitable crop is to be harvested from these self-fertile varieties pollinating insects are needed. The amount of activity necessary to insure large fruit crops is governed by whether the problem is confined to self-fertile or to self-sterile varieties. With the self-fertile types less activity is needed since practically all blossoms visited are self-pollinated; however, it is extremely important that the insect population be evenly distributed over the orchard to insure thorough coverage and sub-

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sequent fruit set. In self-sterile varieties even where compatible varieties have been well arranged for pollen distribution, the requisites for effective cross-pollination involves many complex interrelated factors. Because of a combination of factors many insect visits will be ineffective. An insect well covered with pollen might pass from one variety to another with the result that the first few blossoms visited would be cross-pollinated but should the insect continue its activities on this latter variety many blossoms would be visited which because of the exhausted supply of potent pollen on the insect's body would not be cross-pollinated.

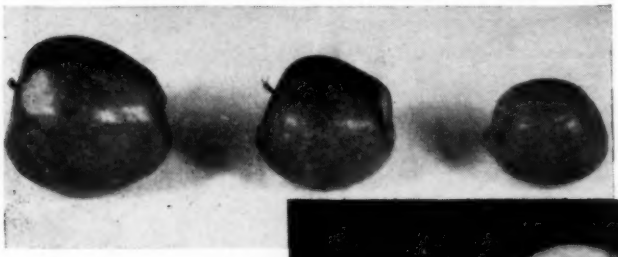

Fig. 1—Red delicious Apples showing varying degrees of lopsidedness. —1, slightly lopsided; 2, moderately lopsided and 3, extremely lopsided.

Fig. 2—The asymmetrical red Delicious Apples shown in Figure 1 are correlated with seed formation. These are shown in reverse order.

Quantity and Quality of Fruit Correlated with Seed Development

Apple orchards in Ohio occupy approximately 135,000 of the total acreage of 175,000 devoted to fruit production. The annual production of apples place it in fourth position among the states while the 1,431,839 young non-bearing trees elevates Ohio to the leading position under this classification. Because of the potential fruit markets which Ohio enjoys the apple acreage will undoubtedly be maintained and probably expended in future years.

Contacts among fruit growers and horticultural specialists indicate that in commercial apple orchards a yield of 225 to 300 bushels per acre is essential to insure profitable operations. With such a definite standard regarding yields per acre the pollination phase of orchard management demands special attention. Lack of pollination results in the fruit dropping soon after petals fall while inadequate pollination results in a heavy June drop and the fruit which succeeds in remaining on the trees until harvest is usually lop-sided because of improper seed development (Figs. 1 and 2).

Seed formation in apples is associated with the pollination conditions in the orchard. Many seeds in apples indicate the ability of the fruit to compete for plant nutrients under adverse growing conditions. Symmetrical fruits are also directly correlated with seed formation.

The quantity and quality of the apple crop is very definitely associated with the seed development of the fruit.

Pollinating Insects

Since fruits are so dependent on insect pollination to insure commercial sets, a knowledge of the abundance and effectiveness of the different types of pollinating insects is important. Pollinating insects may be classified as belonging to the uncontrolled and controlled types. Uncontrolled pollinating insects are usually referred to as "natural forms" and include bumblebees, solitary bees, and flies. The honeybee represents the only example of a pollinating insect that can be controlled economically.

Preliminary studies at the University on the importance of natural pollinating insects in orchard-growing areas and the effect of weather conditions on their pollinating activities is being undertaken. Weather factors, such as temperature, wind velocity, light intensity, and humidity, are accurately measured, (Figs.

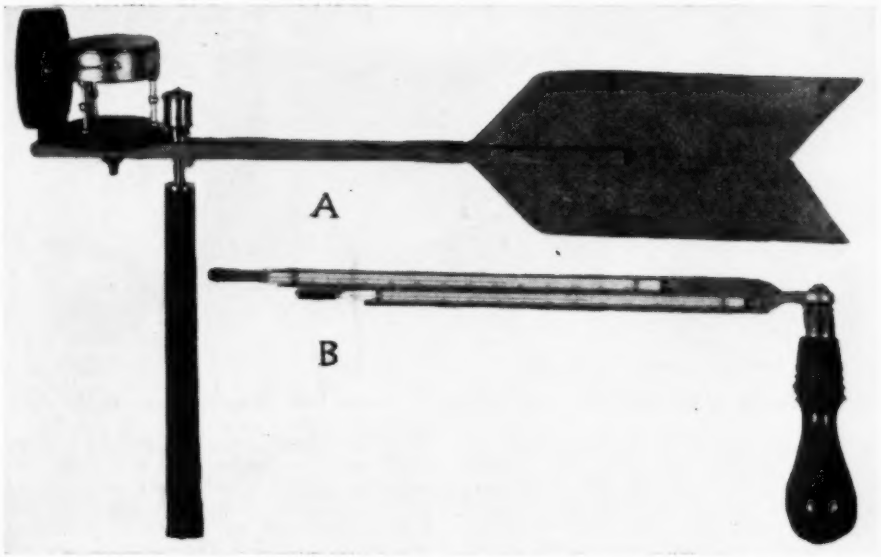

Fig. 3—A—Wind meter for determining wind velocity. B—A sling psychrometer to determine temperature as well as humidity.

3 and 4), at the time that data are being gathered on the abundance of pollinating forms.

Data gathered in three orchards covering a two-year period are shown in Table 1. Without going into a detailed discussion it can be pointed out that in orchards A and B the natural insect population remained relatively constant but their numbers were so limited that their value as pollinators could be rated as negligible. Orchard C represents a most interesting situation. In all the experimental work conducted the author has never encountered such an abundance of natural pollinating insects in an orchard. These insects alone were sufficient to insure dependable pollinating service during the year 1936. A survey in the same orchard in the following year, 1937, revealed an equally spectacular situation, namely that the natural insect population has dropped to such a low level that it played a very minor

TABLE 1—SURVEY OF POLLINATING INSECTS ON ORCHARD BLOOM

Date	Orchard	No. hours collecting pollinating insects	Aver. No. bumblebees per hour	Aver. No. solitary bees per hour	Other forms per hour	Av. No. flies per hour	Aver. No. total pollinating insects per hour (excluding honeybees)	Aver. No. honeybees per hour	Mean Temper. Min. Max.	Approximate wind velocity during day
5/9/35	A	6½	1.86	.57	.57	1.00	4.00	20.29	74.0° F. Min.—64 Max.—80	3 miles
5/8/37	A	7	1.85	2.31	0	1.08	5.31	44.0	64.5° F. Min.—57 Max.—70	1½ miles
5/8/35	B	8	.63	3.25	0	.88	4.76	132.0	64.5° F. Min.—56 Max.—71	2½ miles
5/11/37	B	8	2.13	2.13	0	1.50	5.65	115.0	66.0° F. Min.—58 Max.—73	3¼ miles
5/15/36	C	6	59.5	20.7	0	1.83	82.0	24.8	68.0° F. Min.—62 Max.—74	6 miles
5/21/37	C	7	6.57	3.29	0	1.29	11.1	76.0	70.0° F. Min.—61 Max.—79	8 miles

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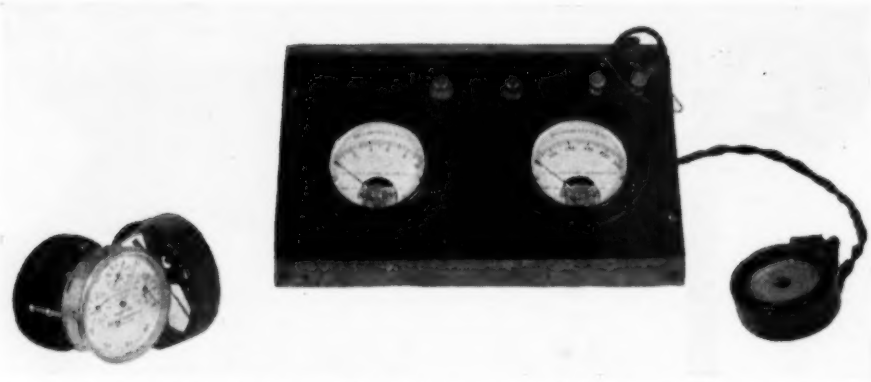


Fig. 4—Close-up of the wind meter. Photometer to measure light intensity shown on the right.

part in the activity necessary to insure a satisfactory fruit set. These contrasting figures on the numbers of insects occurring in successive years in the same orchard emphasizes the undependability of natural pollinating forms.

The fruit crops harvested in these orchards during the years of the survey are worthy of consideration. In orchard A in both years the orchardist rented strong colonies of bees and harvested heavy fruit crops. The yield in orchard B in 1935 was barely one-fourth normal with the stamen block a total failure. In 1937, after the survey was made in orchard B the fruit grower was contacted to acquaint him with the insufficient numbers of pollinating insects, and recommendations were made that 20 2-story colonies be placed in the orchard immediately. This was done the following day and at the close of the season the fruit grower reported harvesting a large crop, with the stamen block breaking all previous production records. The size of the fruit crop in orchard C was heavy for both years.

The information gathered in these surveys augments the evidence that many factors influence the population of insects from year to year which makes it difficult to forecast with any degree of accuracy the numbers which may be available for pollinating service. With one exception, these surveys show that where honeybees are not placed in orchards, nevertheless the bulk of insect pollination is performed by honeybees coming in from outlying territory. It is a hazardous orchard practice to depend on such a source of honeybees since unfavorable weather, such as low temperatures, high wind velocity, and low light intensity, restrict honeybee activity to within a few hundred feet of the hives. Because of the poor weather conditions which frequently prevail during orchard bloom, progressive orchardists are illiminating the hazard of inadequate pollination by placing hives of honeybees in their orchards.

Over-wintered and Package Bee Colonies

The use of hives of bees not only provides adequate numbers for pollination under normal conditions but if colony management conforms to the needs of orchard pollination, dependable pollinating services are insured during unfavorable weather conditions. Experimental work on the importance of colony strength has been carried on by various states—especially noteworthy is the experimental results obtained at the New York Agricultural College. Strong colonies will insure dependable pollinating service during adverse weather while weak colonies are of little value and with the exception of bumblebees the pollinating activity performed by natural forms would be greatly limited. The minimum standard of strength for over-wintered colonies for orchard pollination makes it necessary that colonies possess approximately 5 pounds of adult bees and 6 or more frames of brood. When package bees are used, the 5 pound unit should be purchased for installing in a hive. To insure maximum pollinating activity from over-wintered and package-bee colonies, adequate storage room should be provided as well as an abundance of egg-laying space

Fig. 5—Mustard bloom competing against fruit bloom for the visits of honeybees.

for the queen. The two-story hive meets these requirements for overwintered colonies (page 281) while in the case of package bees installed in a hive a shallow extracting super should be added with a queen excluder separating it from the brood nest. The utilization of queenless packages of bees from the South for conditioning colonies which are below the minimum standard of strength is a reliable practice and offers great possibilities in the future. It is important that such queenless packages be added to the weak colony just at the beginning of the fruit blooming period.

At the present low rental level of colonies for orchard pollination large fruit growers are finding that renting colonies is more economical than owning bees. For the small fruit growers having 3 to 10 acres of fruit we recommend that they own their colonies since they usually have sufficient time to properly care for the bees.

Distribution of Colonies and Pollenizing Varieties

The distribution of colonies of bees is influenced by the acreage of the orchard. Should the orchardist have several acres of fruit (3 to 6 acres) the colonies may be located in some protected site within the orchard or bordering it and the bees will cover the acreage quite satisfactorily. In old orchards of large acreage it is necessary to distribute the colonies at the rate of one colony to the acre. By distributing colonies at this rate it is possible to insure adequate pollination even though critical low temperatures prevail. The provision of hive bees in orchards that require cross pollination does not insure a crop unless there has been an interplanting of compatible varieties. An ideal planting of varieties is where the blocks are only 3 to 4 rows in width and are bordered by similarly arranged blocks of compatible varieties where the blooming period nearly coincides.

Competition of Bloom for Insect Visitors

That there is keen competition between fruit blooming varieties is evident by the uneven distribution of pollinating insects over fruit bloom. This uneven distribution seems to be explained on the basis of the sugar content of nectar secreted by these different varieties as well as the distinct variation in the aroma of the blossoms. Honeybees confine their activities to the varieties secreting the sweetest nectar. A lack of uniformity between varieties competing for insect visits presents a serious pollination problem since this condition results in some varieties setting fruit too heavily and others too poorly with a consequent result of an uneven distribution of the fruit crop throughout the orchard. Recognition of the economic importance of this problem and the urgent need of research work to reveal the characteristics of different varieties in respect to the sugar content of the nectar produced is obvious. It is not too visionary to suppose that as soon as more experimental data are available on this subject future orchardists will not only consider the well established practice of the proper arrangement of compatible varieties but also the varieties which compete on a fairly equal basis for the visits of pollinating insects.

Another serious problem in many fruit-growing areas is the profusion of dandelion and mustard bloom. Dandelion bloom usually occurs during the early half of the apple bloom while mustard bloom is dominant during the latter half. (Fig. 5.) Observations have been made where the honeybees deserted fruit bloom in preference to these two latter sources of forage. From the standpoint of a comprehensive pollination program it is important to conduct research studies to determine the sugar content of dandelion and mustard nectar in order to know how frequently these outside nectar sources cause the partial or entire desertion of pollinating insects from fruit bloom. The abundance of dandelion and mustard bloom certainly has an important bearing on recommendations of the number of colonies of bees for pollinating services in orchards.

XUM

Carl E. Killion

Production of Comb Honey

Carl E. Killion
Chief Apiary Inspector of Illinois

Shop Notes, Preparation of Equipment and Swarm Control

(Continued from April)

Not all beekeepers can afford any special type of honey house and work shop, but two things should be considered no matter where honey is handled—neatness and cleanliness. Keeping the tables and floors neat and clean gives the visitor or buyer a better impression. The handling of comb honey and the preparation of its equipment call for more than a little bench or table work. The height and size of our tables are important. Tables either too high or too low cause undue strain and fatigue. One has to work out his own requirements in regard to height. Most tables are too small.

It requires quite a lot of room for fastening foundation in sections, for scraping, grading, weighing, stamping, and casing comb honey. These same tables are used for cleaning up the equipment during the winter. All supers are scraped free of propolis before being filled again. The separators, too, are cleaned. The T tins, super springs, and bee escapes, are boiled in strong lye water and then washed with clear water and thoroughly dried. The room temperature is kept low during the scraping of the supers and separators; in this way the propolis will come off much better.

Preparing Sections and Supers

The most important shop work in late winter is the preparation of the comb honey supers. The sections are all folded and placed in the supers in advance of the foundation fastening. The **correct cutting of the foundation is of no small importance,** but **the position it goes in the section is of greater importance.** Before describing the cutting or the fastening of foundation, I wish to make the following remarks: "Buy the very best super foundation that money can buy. Cut and fasten this foundation properly, then let the bees do the rest." I do not like split sections. However, one thing I must concede is that when using the split section the sheet of foundation goes into the section in the proper position and not at right angles as many place it when not using a split section. Living-room temperature is about right for cutting the foundation, but when fastening is done the temperature should be lower—about 50 degrees is very good. The sheets then act like sheets of cardboard.

The sections are taken from the super in blocks of four. These are placed upon the fastening board which holds 12 sections or one-half of a super. The small or bottom pieces are fastened first, using a small hot plate. The plate is made from a scrap of sheet aluminum. Sections, when folded and placed in the supers, should have all dovetails or lock corners at the bottom of the section. It spoils the appearance of a section to have this dovetail at the top. The board is turned and the top or large sheet is now fastened. After the super is fitted with the separators and springs, the tops and bottoms of the supers are painted with hot parawax. The reason for painting the bottom of the super is that the bottom of the sections in a T super are exposed just the same as the tops. The parawax is heated and held at 350 degrees. Parawax cooler than this goes on too thickly, more of it is required, and it is harder to re-

move. The painting is done with a three-inch brush.

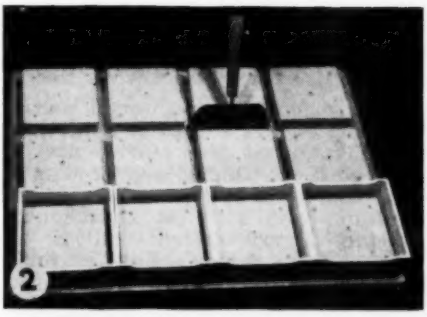
Estimates are made in advance on the number of colonies to be used for comb honey. A bait super is prepared for each colony. Two empty drawn sections are placed near the center of this super. These bait supers are stacked apart from the ones containing all foundation.

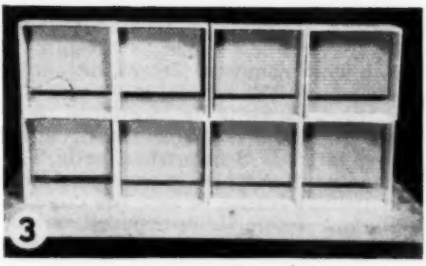
Shop work demands everything in readiness in advance. When bees are swarming and the honey flow is on, one does not have time to fold sections and fasten foundation. Most of us have had the unpleasant experience of refilling supers during a honey flow.

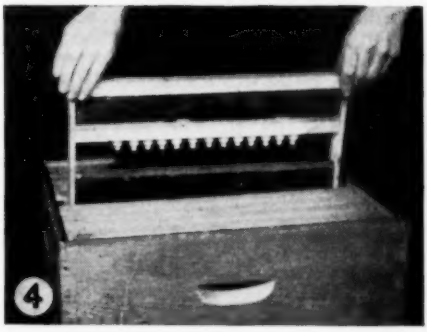
Colony Manipulation

Colonies operated for comb honey are, as a rule, heavier in stores in the fall than colonies operated for extracted honey. The result is that many comb honey colonies are wintered in single-story hives. In the spring when additional room is needed for expanding the brood nest, these well-provisioned bodies are necessary. It is better to have each one only about two-thirds full of honey by using three empty combs in the center. These bodies should not be given too far in advance of the need for them unless the colony is running too short of stores. About 80 per cent of all colonies will be in two bodies at the beginning of the flow.

When the flow starts all colonies for comb honey are reduced to one story. Most likely the top body will have the most compact brood and be provisioned with honey. This is left on the parent stand, but you must make sure the queen is left here, too. This parent colony is given its first, or bait section, super at this time. The body of brood and bees that is taken away can be used for increase, for helping a weaker colony, or for refilling with honey for feed that fall or next spring. If the bees in this body are not needed where the body is given, they are shaken in front of the parent colony. However, if increase is wanted this body of bees and all are placed on a new stand and the entrance reduced to small dimensions. We add other bodies to this until it is three, four, or five stories high, depending upon the amount of increase desired. After 48 hours, this stack of hive bodies can be given a ripe cell or a young queen.







1. One of the smaller scraping tables, with convenient drawers for holding tools.
2. Foundation fastening board. Showing hot plate.
3. Sections with foundation fastened. Note horizontal lines in foundation.
4. The grafted bar being lowered into the hive.

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In reducing our colonies to the single story in comb honey we are inviting swarming. During some seasons swarming is worse than others. During other seasons, even with all the crowding one does, they still do not swarm. The nightmare of swarming prevents many beekeepers from trying to produce section comb honey. Swarm control methods are numerous. Regardless of what method we use there is one rule to remember—to maintain the highest degree of colony morale at all times. One hears too little about colony morale. Too many of us term the bee only as a **honey machine.**

Swarm Control and Queen Rearing

Swarm control and queen rearing are carried out together. Sometimes the first queen cells started are destroyed. Soon this colony is starting beautiful cells. It can be used for cell building and still go right ahead storing. Every queen cell is destroyed in this colony. But first **make sure this colony is queenright.** Either an outside comb or one with a small amount of brood is removed. The remaining frames are pushed to each side leaving the space as though the comb was removed from the center of the hive. The hive is closed, and the bar of cells is prepared with royal jelly; larvae from the breeding queen is grafted into these cells. This bar of grafted cells is now placed in the special frame. When the cover is removed from the prepared colony this space we left is now filled to overflowing with bees—bees that are eager to accept those cells. Later when the cells are sealed, the queen may swarm out and become lost. But we have our cells ready to use for requeening colonies that are preparing to swarm.

In checking over the apiary we may come to a colony that is preparing to swarm. We have several bars of cells ready to use. The queen in this colony is killed, all sealed cells are destroyed, but four or five unsealed cells are left. These few unsealed cells prevent the colony from losing its morale. We do not hear, as Evrard writes, "unbroken murmur like a cry of anguish". In most cases these cells are not allowed to hatch but are destroyed and a cell of grafted stock is given. The essential thing to remember in giving a cell is being sure that there are no other queen cells in this hive, also in excessive swarming years, that there are no unsealed worker larvae in the colony when this cell hatches. For in these years of eagerness to swarm, the bees may enlarge one of the cells containing a large worker grub, float it with royal jelly, and our own nice virgin which emerged from the cell given may swarm out to parts unknown, leaving us an undesirable scrub.

A summary of reasons why I use this method of swarm control follows: This system works well with comb honey. It takes no extra equipment. Work goes on in the supers even though cells are being produced in the brood chamber. Queens thus reared are of the very finest quality —built under swarming conditions but not from swarming stock. Queens reared under these conditions are the ones that produce good crops even in their third year. It would take an entire article to present the matter of selection in breeding stock for fancy comb honey production.

(To be continued)

Straining Drones

H. C. Short, Fitzpatrick, Ala., and two of his helpers, also Alabama's faithful bee inspector, Thomas Atchison, to the right. Mr. Short is calling attention to his funnel with queen excluder near the top, used for straining drones out, as combs of bees are shaken into it.

Soft Chocolate Drops and Pineapple Oatmeal Drops rank high on the list of favorite cookies.

To Fill the Cooky Jar

Mrs. Benj. Nielsen

Honey Cookies are a Wholesome, Convenient Form of Sweets

With school vacation just around the corner mothers will have a real job keeping the cooky jar filled. The frequent raids, bound to be made by growing, ever-hungry boys and girls, are going to keep the cook stepping. Let's keep it filled with wholesome, delicious honey sweetened cookies. These honey sweetened cookies are unexcelled as a source for furnishing that boundless energy our young folks spend on present-day activities, both in work and play.

If we are going to have a continuous supply of honey cookies we will have to get busy right now; for cookies made with honey as the sole sweetening agent absolutely must be given time to age to produce that inimitable flavor and mellow goodness. As a rule, honey cookies seem tough and not nearly sweet enough when they come from the oven. But put them away in tight containers and let them alone, for at least two weeks, and you will be amazed at the happy change. They will be soft, sweet and delightfully flavored. If you can keep two weeks ahead of the demand you can build a reputation for good cooking around your cooky jar!

What a lot of time grandmother must have spent making rolled cookies! Wouldn't she be surprised and delighted with our present day aids—insulated, heat-controlled ovens, modern cookie sheets, standardized measurements and carefully tested recipes for many types of cookies—aids that spell success every time?

It requires no little skill and patience to handle the soft, short dough essential to making tender, delicious rolled cookies. If the dough is thoroughly chilled before rolling is attempted, the task will be much easier; less flour will be required, resulting in tender light cookies. The scraps left over from each cutting should be saved and all rolled together at the last; these will not be as light and tender as the first cookies that come from the oven.

If you lack time and patience to roll the dough, here's a short-cut that will help you fill the cooky jar with tasty honey cookies in a jiffy. Chill the soft dough thoroughly, then, using a spoon or pastry tube, drop on cookie sheets, allowing generous spaces between, and let stand a few minutes. Then flatten the heaps with the bottom of an ordinary drinking glass, covered with a cloth. To avoid sticking, dip the glass in water occasionally and pat on a towel to remove excess moisture. Easy?

Large cookie sheets that fit the oven are a boon in cookie making. If small ones must be used, they should not be crowded in the oven; to bake evenly, spaces, at least one and one-half inches, should be allowed around each. If few sheets are available and a number of bakings must be made, time may be saved by placing the cookies on waxed paper; slip cookies off the sheet, paper and all; replace with cookie dotted wax paper and bake merrily on.

If you wish to convert your favorite cookie recipes into all-honey sweetened ones some allowance may need to be made concerning the liquid in the recipe. If the water content of your honey is known to be high some liquid must be omitted. No hard and fast general rule can be used as honeys vary in water content; flours also vary in the amount of liquid they can absorb. Cookies containing chocolate, nuts, and fruits will require more liquid than those cookies in which these ingredients are not used. A bit of experimenting will reward you richly.

XUM

Combine Chalon Fowl's delicious honey cookies and honey marshmallows for many festive cookies.

Recently Mr. E. R. Root sent to me a recipe originated by Mr. Chalon Fowls. Ladies, we shall have to look to our laurels, lest the men take them away from us! These fine cookies are guaranteed to improve with age if packed in tight containers and hidden safely away from husband and children, for two weeks. You will be proud to serve them to your guests. Following is the recipe as it came to me:

Chalon Fowls' Honey Cookies

Three teaspoonfuls soda, dissolved in two cups warm honey, one cup shortening, containing salt, two teaspoonfuls ginger, one-fourth cup hot water, flour sufficient to roll.

I used butter as shortening and baked the cookies 8 to 10 minutes in a moderate oven, 375 degrees F. Part of the dough was kept in the refrigerator over a week; cookies baked from it were as delicious as when freshly stirred up. Using this fine basic recipe and an excellent moist honey marshmallow many festive cookies can be worked out. A few possible combinations are shown in the picture. Honey-flavored graham crackers make grand pinch hitters in case of emergency.

Honey Marshmallow

Two egg whites, ½ cup honey, ⅛ teaspoon salt, 2 teaspoons gelatine, 2 tablespoons water, 1 teaspoon vanilla and 1 square chocolate.

Beat egg whites until they stand in stiff peaks, beat honey in gradually. Place over rapidly boiling water and cook, beating constantly for 7 minutes. Meanwhile soften the gelatine in the water and dissolve over hot water. Remove egg and honey mixture from fire, add vanilla and divide into two parts; to one part add the grated chocolate which has been melted over hot, not boiling, water. Add dissolved gelatine to each part, adding a larger portion to the white part. If equal portions are used the chocolate will be too stiff. Allow to cool, stirring occasionally. When mixture stiffens use on cookies and decorate as desired. Coloring and various flavoring may be added to the white part.

If filled cookies are liked here are some extra good fillings:

Honey Pumpkin Filling

One and ½ cups pumpkin, canned or freshly cooked, ⅔ cup honey, 2 tablespoons cream, ½ teaspoon salt, 1 teaspoon cinnamon, ½ teaspoon ginger, 1 teaspoon cornstarch, 1 egg, well beaten, ½ cup crushed pineapple, well drained and ½ cup nutmeats, chopped.

Combine all ingredients, except the nutmeats. Mix well. Cook until heated through. Remove from fire, add nutmeats.

Pineapple Filling

Blend ⅔ cup honey, 2 tablespoons cornstarch, add 1 cup crushed pineapple, ½ cup pineapple juice, 3 tablespoons lemon juice, 1 tablespoon melted butter, and ¼ teaspoon nutmeg. Cook slowly until mixture thickens, stirring constantly.

Honey Creams

One half cup butter, 2 cups honey, 1 egg, about 4 cups sifted flour, 2½ teaspoon soda, ½ teaspoon salt, 2 teaspoons ginger, 1 teaspoon cinnamon, 1 teaspoon cloves, 1 teaspoon nutmeg and ¾ cup hot water.

Cream butter and honey until fluffy. Add well beaten egg and mix thoroughly. Sift flour, measure and sift with soda, salt and spices. Add alternately with hot water to the creamed mixture. Chill. Drop by teaspoonfuls, well apart, on well-oiled baking sheets. Bake in moderate oven, 375 degrees, F. 8 to 10 minutes.

Frosted Chocolate Drops

One and ¾ cups sifted flour, ½ teaspoon salt, ½ teaspoon soda, ½ cup butter, ¾ cup honey, 1 egg, 2 squares unsweetened chocolate, 1 teaspoon vanilla, and ⅓ cup milk.

Sift flour, measure, and resift 3 times with the salt and soda. Cream butter until fluffy, add honey gradually, beating well after each addition. Add well-beaten egg and chocolate which has been melted over hot, not boiling, water and cooled. Add vanilla. Add dry ingredients and

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milk alternately, beating until smooth after each addition. Drop by spoonfuls on greased baking sheets. Bake 12 minutes in 400 degree F. oven. When cool, frost and press walnut or pecan half on each cooky.

Honey Chocolate Frosting

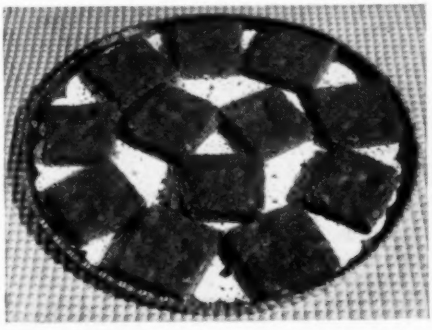
One cup confectioners sugar, 1 egg, 2 tablespoons honey, few grains of salt, 2 squares unsweetened chocolate, and ½ teaspoon vanilla.

Add sugar gradually to the slightly beaten egg, add honey and beat until smooth. Stir in salt and melted chocolate. Add vanilla. Let cool before spreading. This thickens upon standing. If it becomes too thick while spreading, add a few drops of water.

Pineapple Oatmeal Drops

One cup honey, ½ cup butter, 1¾ cups sifted flour, 1 teaspoon baking powder, ¼ teaspoon soda, ¼ teaspoon salt, 2 eggs, ½ teaspoon cinnamon, ⅓ cup sour milk, ½ cup raisins, 1 cup quick oatmeal, ½ cup grated pineapple, well drained and ½ cup nutmeats.

Cream honey and butter until very light, add well beaten eggs. Sift flour, measure and sift with dry ingredients. Add to creamed mixture, alternately with sour milk. Stir in raisins, oatmeal, and nutmeats. Mix well. Chill. Drop by spoonfuls, well apart, on greased cookie sheets. Bake in moderate oven, 350 degrees F. for about 15 minutes or until well browned.



Honey Brownies, iced or uniced, are easy to make, and "carry their age" exceptionally well.

Honey Brownies

One cup sifted flour, ½ teaspoon baking powder, ¼ teaspoon salt, 6½ tablespoons butter, 2 squares chocolate, 1 cup honey, 2 eggs, 1 teaspoon vanilla and ½ cup broken nutmeats.

Sift flour, measure, add baking powder, and salt and sift again. Add butter to melted chocolate, blending well. Beat eggs until light, add honey gradually, beating until very light. Stir in chocolate mixture, beating thoroughly. Add dry ingredients, vanilla, and nutmeats. Spread thinly in well-oiled pan. Bake in moderate oven, 350 degrees F. for 35 minutes. Cut in squares. Ice if desired.

Honey Nuggets

Three tablespoons honey, ½ cup butter, 1 cup sifted flour, ⅛ teaspoon salt, 1 teaspoon vanilla, 1 cup finely chopped pecan nutmeats and powdered sugar.

Cream honey and butter together. Sift flour, measure, add salt, and stir into creamed mixture. Add vanilla and nutmeats. Blend thoroughly. Form into small balls about an inch in diameter. Place on greased cookie sheet. Bake in moderate oven, 350 degrees F. for 15 minutes. Remove from oven, cool slightly and roll in powdered sugar. When cold, roll again in powdered sugar.

Honey Orange Drops

Three egg yolks, ¾ cup honey, 2 tablespoons orange juice, grated rind of 1 orange, 1¾ cups pastry flour, 1½ teaspoons baking powder and ½ teaspoon salt.

Beat egg yolks until thick and lemon colored. Add honey gradually, beating constantly. Stir in orange juice, and grated rind. Sift flour, measure and resift 3 times with baking powder and salt. Add gradually to egg and honey mixture. Chill in refrigerator over night. Place small pieces, size of walnut, well apart on well-oiled baking sheet. Bake in moderate oven, 375 degrees for about 10 minutes.

Honey Cornflake Macaroons

Three egg whites, ¾ cup honey, 1½ cups shredded coconut, 3 cups Kelloggs' Corn Flakes, 1 tablespoon cocoa, 1½ teaspoons vanilla.

Beat egg whites with rotary or electric beater until very stiff, then add the honey, very gradually, (this is important), beating constantly. Fold in cocoa, coconut, and corn flakes; add vanilla. Drop by spoonfuls on greased cookie sheets. Bake in slow oven, 325 degrees F. for about 20 to 25 minutes. Remove from oven, turn off heat. Let stand a few minutes, loosen from sheets, invert and return to the oven to dry off.

Aurora, Nebr.

XUM

Proposed Forced Supersedure Method

M. J. Deyell

Especially Adapted to Producing Comb or Extracted Honey Over Double Brood-chambers

[The method proposed in this article is not claimed to be 100% perfect. While we have done considerable experimenting along this line we hope to continue our experimental work this coming season with the hope that we may eventually develop a technique that may be applied satisfactorily in regions where swarming is prevalent.—Editor.]

The late George S. Demuth, former Editor of Gleanings, was one of the best comb honey producers in this country. He observed, as have other experienced producers of comb honey, that a colony with an old queen, or even an over-wintered queen, is likely to swarm quicker than a colony with a young queen produced in the hive during the current season. With this in mind, Mr. Demuth experimented along the line of bringing about forced supersedure —that is, rearing a young queen for each colony just prior to, or at the beginning of the major honey flow, by introducing a queen cell to combs of brood with bees taken from the brood chamber and put into the third story. The young queen thus produced was intended to supersede, or take the place of, the old queen below at the beginning of the main flow. Lack of space does not permit our going into the details of the experiments that have been conducted along this line.

The main difficulty in rearing young queens in this latitude prior to the main honey flow was found to be unfavorable cold weather, which prevented virgins from mating normally. (See page 394, July 1933 Gleanings.) Some queen breeders in the North have frequently attempted to rush the season by trying to rear queens early in the season, only to find that in a majority of cases, unfavorable weather stood in the way of success.

What a marvelous thing it would be if comb-honey producers could solve the swarming problem, and devote their entire attention, during the main honey flow, to putting on supers. This would obviate the necessity of examining brood chambers each week for queen cells.

Ten Day Broodless Period Necessary in Swarm Prevention

Comb-honey producers know that in order to stop swarming for the season, it is possible to dequeen the colony preparing to swarm, for ten days, destroy all queen cells at the end of the ten-day period, then introduce a young laying queen. This ten-day non-egg-laying period is necessary to absolutely stop swarming. This is one of the principles on which our proposed forced supersedure idea rests. Mr. Demuth's method incorporated the ten-day broodless period, as he introduced open or unsealed cells.

Our Proposed Method

The method we propose is somewhat similar to the one described by Dr. W. E. Dunham in the article, "Modified Two-Queen System," on page 11, January, 1939 Gleanings, and is especially adapted to the double-brood-chamber hive. The technique we propose is simple and does not necessitate any special equipment other than a small piece of fine mesh wire screen two inches by four inches, and a small piece of queen excluder zinc of the same dimensions and a three inch opening cut in front of the rim in the inner cover, for each colony. Briefly, the procedure is as follows:

During the fruit bloom or dandelion honey flow, the upper brood chamber, which at that time usually has five or six combs of brood, is lifted up and an extracting super with empty drawn combs, is placed under it. Combs for the third story, or upper brood chamber, should contain honey and mostly sealed brood, with young emerging bees. The young bees, lifted into the third story, will stay put, while the old bees will return to the lower brood chamber. The queen, with some combs of brood and honey, is left in the lower chamber under a queen excluder. The upper brood chamber, or what is now the third story, rests on the inner cover, with center block removed and the piece of fine wire screen is tacked over the hole. This third story is given a small front entrance by cutting an opening about three inches wide in the rim of the inner cover. Instead of introducing an open queen cell to the bees in the third story, as was Mr. Demuth's

practice, we propose to leave the bees in this third story queenless for ten days, then to introduce a young laying queen. During this time the old queen below is laying and therefore brood-rearing is not suspended during the requeening process.

It is easy to introduce a laying queen to bees that have been queenless for ten days, especially when all queen cells are destroyed. In fact, cells may be destroyed on the ninth day and a young queen introduced. Be sure, in any event, to destroy cells early on the tenth day to avoid the possibility of virgins emerging.

After the queen is accepted and laying a queen excluder zinc is placed over the hole in the inner cover after the wire screen already in use has been removed. The bees in both brood chambers may now intermingle. Usually the old queen in the lower hive is killed by the bees soon after the young queen in the upper brood chamber begins to lay. This is where the forced supersedure idea comes in. This does not always happen, however. The old queen below may be retained by the bees for a time. The age and vitality of the queen in the lower brood chamber may have a bearing on the length of time she is retained.

Uniting the Upper and Lower Brood Chambers

We learned from experiments conducted this past summer that in this locality under favorable conditions double-brood-chamber colonies will produce comb honey. (See page 516, August, 1938, Gleanings.) It should, therefore, be feasible to unite the colony in the third story, having the young queen, with the colony below at the start of the main honey flow, by simply setting the third story onto the bottom story. The super which was placed temporarily between the upper and lower brood chambers, should, at the time the two brood chambers are united, be placed on an extracted honey colony, after the bees are shaken out in front of the united colony. When doing this, it is a little safer to kill the old queen below at the time the two brood chambers are united, if she has not been killed by the bees. However, it has been our experience that in the large majority of cases the young queen is retained and the old queen is killed when uniting is done without killing the old queen below. When employing this method on a commercial scale it would seem safe to let the bees dispose of old queens and thus save considerable time. If it is desirable to reduce the brood chambers down to a single brood chamber colony, all well and good. This would require more labor. Uniting is easily done, because the two colonies have been in contact through the queen excluder zinc in the inner cover and have the same colony odor.

By using this method we have a very populous colony in a double-brood-chamber hive, with a young queen and an abundance of brood. Such a colony should store a big crop of comb honey, provided conditions are favorable for nectar secretion. It should be unnecessary to examine the brood chamber for swarming cells again during the honey flow. It has been found that a colony with a young queen that has started to lay just prior to, or at the beginning of the main honey flow, seldom swarms that season. Furthermore,

(Continued on page 333)

Colony in double brood-chamber hive produced good crop of comb honey last season.

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Moisture Content of Honey

E. R. ROOT

Honey with Too High a Water Content is Likely to Cause Trouble

It is well known by beekeepers as well as honey buyers, that the moisture content of honey varies greatly. On the basis of percentage, the water content may run as high as 25 and as low as 13 percent. According to Circular No. 24, "United States Grades, Color Standards and Packing Requirements for Honey", an 18.6 percent, or 11 pounds, 12 ounces weight to the gallon at 68° F. will be accepted as a U. S. standard as the maximum moisture content of a good honey. But even such honey, before it reaches the market, should be processed; that is, heated to a temperature of 160° F. and sealed while hot. Unless it is so treated it may ferment and sour.

The Northern buyers prefer honey at a lower water content, no higher than 17.4 percent, or 11 pounds, 13 ounces weight to the gallon at 68° F. Most buyers prefer, if they can get it, a 17.0 percent moisture content, or 11 pounds and 13½ ounces weight to the gallon, at 68° F. Unless an 18.6 percent honey, or 11 pounds and 12 ounces weight to the gallon, has been processed, it should be immediately mixed with a honey of lower water content, of say, 15.0 percent. The two honeys should be heated to a temperature of not less than 160° F. and **thoroughly stirred,** as a thick and a thin honey do not readily mix under ordinary temperatures.

Beekeepers have been loosely saying that ordinary honey runs about 12 pounds to the gallon. This would make a moisture content of only 14.02 percent. Honeys of that low a percentage are rather rare. The average of Western honeys, produced in dry mountain areas, will run from 17.0 to 15.4 percent, or respectively 11 pounds and 13½ ounces and 11 pounds and 15 ounces weight to the gallon. A 17.4 percent and below honey is usually regarded as one which is reasonably safe from fermentation except when it is granulated. When a heavy-bodied honey granulates it may ferment and sour unless it has been heated to a temperature of 140°, or, better, 160° to destroy all yeast germs. When honey granulates, the dextrose crystals separate out, leaving an excess moisture, which, combined with the levulose not yet granulated, makes the water content high enough so that fermentation can take place under proper temperature.

Honey buyers have learned from dear experience that honey with a high moisture content may cause them trouble. They have also learned that a heavy-bodied honey may ferment after it has granulated.

It should be noted that a gallon can that will hold exactly 12 pounds of ripe honey at normal temperatures, will hold only 11 pounds and 12 ounces when that honey is heated to 160 degrees to prevent granulation. When, however, this honey cools, 4 ounces more of cold honey can be added, but as a rule most gallon cans of honey contain that amount less than the 12 pounds, and should be so labeled to conform to state and federal laws.

How to Measure Moisture Content

There are two methods commonly used for determining the moisture content of a honey; one by the refractometer and the other by the hydrometer.* The former gives a determination much more quickly than the latter, but costs all the way from

*It must be remembered that both the hydrometer and the refractometer are instruments for measuring something about a honey which reveals something else, namely the water content. Neither instrument measures water content directly. The hydometer measures lifting power of honey, the refractometer measures refraction of light in proportion to the density of the sugars in the honey. By interpolation, one can get a fairly accurate figure which represents water content, but to get the accurate figure on water content, it is necessary completely to dehydrate the honey and measure loss of weight.

Each instrument has its faults for the use to which we put them. The hydrometer requires a larger amount of honey, fails to correct for thixotrophy, requires accurate temperature measurements of the sample, etc. The refractometer has a self-containing temperature control because of the water which flows through it, thixotrophy makes no difference and only a small sample is required. With the smaller sample, freedom from any crystals becomes easier. Furthermore the uncorrected reading of the refractometer is more nearly right than with the hydrometer. The refractometer was made originally for determining refraction of simple sugar solutions, for which it seems to be about perfect. From this figure it is a direct reading to water con-

HONEY TABLES, SHOWING THE RELATIONSHIP BETWEEN VARIOUS HYDROMETER SCALES AND REFRACTIVE INDEX TO MOISTURE CONTENT AND WEIGHT PER GALLON OF HONEY

Compiled by Dr. H. D. Chataway, National Research Laboratories, Ottawa, Canada

At the head of each column will be found the temperature at which the figures given below it hold true. If a honey has been examined at a higher temperature than the standard one, there should be added to the observed reading an amount equal to the temperature correction, given at the foot of the table, multiplied by the difference between the observed and the standard temperatures

% Moisture	°Bé (Modulus 1450) at 60° F	Sp. Gr. (20° C 20° at 20° C)	°Twaddle at 60°F	°Brix at 20°C	Diff. between use of hone hydrometer tables and Brix tables in %H20	Lb. per Imp. Gal. at 20°C lbs.	oz.	Lb. per U.S. Gal. at 20°C lb.	oz.	Ref. Index at 20°C	% Moisture
13.0	45.29	1.4525	90.5	85.66	1.34					1.5041	13.2
.2	.19	10	.2	.45	.35	14	8	12	1	35	.2
.4	.09	1.4495	.0	.24	.36					30	.4
.6	44.99	81	89.7	.03	.37	14	7½			25	.6
.8	.89	66	.4	84.82	.38			12	½	20	.8
14.0	.79	53	.1	.61	.39	14	7			15	14.0
.2	.69	38	88.8	.39	.41			12	0	10	.2
.4	.59	24	.5	.18	.42	14	6½			05	.4
.6	.49	09	.2	83.97	.43					00	.6
.8	.39	1.4395	87.9	.76	.44			11	15½	1.4995	.8
15.0	.29	81	.7	.55	.45	14	6			90	15.0
.2	.19	67	.4	.34	.46					85	.2
.4	.09	52	.1	.13	.47	14	5½	11	15	80	.4
.6	43.99	38	86.8	82.92	.48					75	.6
.8	.89	24	.5	.71	.49	14	5	11	14½	70	.8
16.0	.79	10	.2	.50	.50					65	16.0
.2	.69	1.4295	85.0	.29	.51	14	4½			60	.2
.4	.59	82	.7	.08	.52			11	14	55	.4
.6	.49	67	.4	81.87	.53	14	4			50	.6
.8	.39	54	.1	.66	.54					45	.8
17.0	.29	39	84.8	.45	.55			11	13½	40	17.0
.2	.19	25	.6	.25	.55	14	3½			35	.2
.4	.09	12	.3	.04	.56			11	13	30	.4
.6	42.99	1.4197	.0	80.83	.57	14	3			25	.6
.8	.89	84	83.7	.63	.57					20	.8
18.0	.79	71	.4	.42	.58	14	2½	11	12½	15	18.0
.2	.69	56	.2	.21	.59					10	.2
.4	.59	43	82.9	.01	.59	14	2			05	.4
.6	.49	29	.6	79.80	.60			11	12	1.4900	.6
.8	.39	15	.3	.59	.61	14	1½			95	.8
19.0	.29	01	.1	.39	.61			11	11½	90	19.0
.2	.19	1.4087	81.8	.18	.62					85	.2
.4	.09	74	.5	78.97	.63	14	1			80	.4
.6	.90	60	.2	.77	.63			11	11	76	.6
.8	.89	46	80.9	.56	.64	14	½			71	.8
20.0	.79	33	.7	.35	.65					66	20.0
.2	.69	20	.4	.15	.65			11	10½	62	.2
.4	.59	06	.2	77.94	.66	14				58	.4
.6	.49	1.3992	79.9	.74	.66			11	10	53	.6
.8	.39	79	.6	.53	.67	13	15½			49	.8
21.0	.29	66	.4	.33	.67					1.4844	21.0

TEMPERATURE CORRECTIONS

°Baume	.024° Bé	per °F	or .0430Be per °C
Specific Gravity	.0006	per °C	or .00033 per °F
°Twaddle	.07	per °F	or .125 per °C
°Brix	.05	per °F	or .09 per °C
Pounds per Imp. Gal.	½ oz.	per 5° C	or per 9°F
Pounds per U.S. Gal.	½ oz.	per 6° C	or per 11°F
Refractive Index	.00023	per °C	or .00013 per °F

From The Beekeeper, Canada, for January 1933

tent, since this variation is virtually a straight line. Because of the non-sugar ingredients (variable in amount) in honey, the refractive index does not agree entirely with that of sugar solutions, hence the Chataway correction tables which we must use.

The great obstacle for the hydrometer is inaccuracy of reading of the figures because of the surface and because they must usually be read through an irregular jar (unless it is filled right to the top). The placing of a little water on the top surface partially corrects the error of the adhesion of honey to the stem, but still it makes the reading subject to error—Dr. E. F. Phillips, Cornell University.

$150.00 to $250.00. Its use, of course, is necessarily confined to schools, colleges, large buyers, and to large producers of honey. The one used by the author is made by Karl Zeiss of Germany and sold by Eimer and Amend of New York City. It is accurate and quick in results.

A hydrometer, especially designed for honey by Dr. H. C. Chataway, is sold by the Central Scientific Com-

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XUM

From the Field of Experience

"These is Pease's Beeses."

DO YOU? I DON'T

C. H. Pease

Do you wait for settled warm weather before opening your hives? I don't. I examine every colony the first warm flying days after they come out of the cellar, which is usually in April, to learn the condition, the stores, the size of the colony, and most important of all, the queen and her work. If neither brood nor queen is found the quicker that condition is corrected the better, either by introducing a new queen or uniting with a queenright colony. Every day that a queenless colony remains queenless cuts down your honey crop.

Do you depend upon the clipping of queens' wings to prevent swarms from absconding? I don't. During the fruit bloom period I clip the wings of every queen I own, not already clipped the year before, but not to keep swarms from leaving me. It distinguishes them from virgins that may come on later; it also tells me their age, and that they are queens of either the previous year or the year before, and my record books tell which. I seldom keep queens more than two years, and then only in case of "star actors" for breeding. I learned from experience that far too often supersedure of the clipped queen results in swarms "taking to the tall timber" with the virgin that supplants her mother, and clipping cannot be depended upon as a sure means of saving swarms.

Do you depend upon killing cells to head off swarming? I don't. It is impossible to know positively that you get every one, and one cell overlooked is as good as a dozen to chase out a swarm. I have seen queen cells so ingeniously buried in the side of the comb that only the end was visible and appeared not unlike a sealed drone cell. If several days of bad weather postpones swarming, or if for any reason you may not be able to examine the colony at the psychological moment, and in the interim the little lady emerges from her hidden cell, she may develop enough to fly before the next examination and away she goes with your swarm, and the fact that her mother's wing was clipped is of no avail. If, at the same time, another swarm happens to come out, even with a clipped queen that cannot go with them, her bees are almost sure to join the others, in which case you lose two swarms.

Do you, when clipping a queen, catch her with one hand while you clip her wing with the other? I don't. Clipping queens is a ticklish job at best, and when I first read instructions for catching and holding her while the clipping is done, and these same instructions warned that "she should not be handled more than is absolutely necessary, both because she is easily injured and if handled too much may be killed by the bees when put back into the hive," I concluded that if the job could be done without touching her it would be much safer. Not only that, but the idea of grabbing the queen out from thousands of stinging workers barehanded did not appeal to me. The result was my decision to clip her on the comb, and I have always done it that way. With a gentle queen it's a

cinch, but with one of the nervous sort it's a case of chase her until she quiets down or sticks her head into a cell. In any case it is best to not touch her with the scissors until she presents a favorable opportunity, and then clip; if the first attempt is a miss, the chances are she may start a double-quick march around the comb in a manner that says "I don't know where I'm going but I'm on my way." In case of a very erratic queen it is sometimes better to close the hive and try again later. Before trying to clip a queen, practice on drones until you become proficient. However, I am not advocating this or any other method; do the way that suits you best and gives you best results—but I don't lose any queens from handling.

Do you locate your bees in the shade? I don't. Nearly all of my hives are in full sunshine and all face southeast; they get the morning sun as soon as it peeps over the horizon, and on chilly mornings those colonies in full sunshine begin their day's work much earlier and gather bigger crops than those in the shade. To combat the extreme summer heat of midday a sheet of cellular-board is laid on the wooden cover before the metal top is nailed on and the under side of the latter is painted with aluminum paint, which repels heat. I have never known a time when my bees were driven out of the supers by heat, and never had a comb melt. I have screens of white cloth tacked to lath for shading the south side of the hives on extreme hot days, but seldom use them.

Do you work your colonies by kneeling on your knees on the ground, or sitting balanced on the edge of an outer cover, or standing bent over the hives in a back-aching posture? I don't. I made a combination tool-kit that not only furnishes a comfortable seat but also places at my finger-tips everything needed for the manipulation of colonies. The middle compartment holds fuel for the smoker, the cover of which is the seat; it is hinged and automatically locks itself when it drops shut. The two end compartments carry the hive tool, bee escapes, queen cages, hive staples, small scissors for clipping queens, small hammer and brads for making minor repairs, box of safety matches, box for wax scraps, record book, pencil, etc. Another kink that proves very convenient with me is a lot of wooden clothes-pins painted red. When, during manipulations, it is desired to mark certain colonies for any purpose or reason, a red clothes-pin snapped on the ring of the hive-weight is a conspicuous reminder that can never be overlooked, and tells at a glance that that colony has been "fixed" so far as that manipulation is concerned.

Combination tool-kit and hive seat.

Canaan, Connecticut.

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FIVE HUNDRED POUNDS OF HONEY

R. R. K.

Yes, that was my harvest from six hives—more honey than I ever saw in all my life! What could one do with all this honey? That's only a drop, some large honey producer says! But what a problem if you never before faced five hundred pounds of sweetness.

First I bought a few dozen 5-lb. pails and 2-lb. glass jars, and went to selling my harvest.

I showed the jars and pails to a few friends, and they gladly bought a pail or two. I mentioned my "honey secrets" to neighbors, and they bought more. A friend of mine attended a Club one evening and a dozen 5-lb. pails were sold there and then. Taking heart, I took samples along on the job and showed them to the boys (and the girls) and lo, and behold they bought, and told others, who bought, and kept on buying. Even my son Robert, only 9 years old, sold a dozen jars to the neighbors. The five hundred pounds were sold long ago, and I have sold another five hundred pounds from other sources.

It amuses me what remarks people make when they order the second and third jar: "That is real honey. You can never get pure honey in the store." Again: "I have not eaten such honey since I was a child," and, "I

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did not know you could buy pure honey so reasonable."

One is surprised with the statement that the honey market is stagnant, that there is over-production; that the honey industry needs a new Moses. My observation is this: There seems to be an enormous market for honey and it can be sold for a good price, sold readily by direct method —told from mouth to mouth. Every apiarist can create his own market and be the chief salesman. Go to it!

Chicago, Ill.

[It isn't difficult to sell a ton of honey in a large city if one has a mind to work. The large carload producer away from the center of population has another problem and this is the problem that must be solved, for the good of our industry.—Editor.]

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CARRYING CASE FOR SCISSORS

W. H. Hull

The question of how to carry queen-clipping scissors safely when working among the bees remains unanswered in the mind of many a beekeeper. Some tie the scissors to a string and allow them to dangle from the belt. Others make a leather case and attach it to the belt—often in front, where it is handy to get at, but also in a position to inflict a serious wound if one should slip or fall. Probably the majority put the scissors into one or another of their pockets and trust to luck that in case of a fall they will not fall on the points. Yet serious and sometimes fatal injuries result from this practice.

A carrying case for scissors or other sharp instruments strapped to the hand in this manner does not interfere with movement of the hand and is safe and convenient. Tension of the leather case keeps the instrument from falling out, but if it is to be used only occasionally the case may be attached the other end up.

A leather case attached to the belt is safe enough if placed at the side or back, but in that position it is awkward to reach. By strapping the case to the back of the left hand, as shown in the picture, the scissors are carried safely and are ready for instant use. The straps do not interfere with movement of the fingers. In the position shown the tension of the case keeps the scissors from falling out, but if they are to be used only occasionally, the case may be attached the other end up so that they cannot fall out.

This plan is also practical when cutting flowers in the garden, for carrying a budding knife, or any small sharp instrument.

Vienna, Va.

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HONEY IN SURGERY

Penn G. Snyder

In his notable book "Honey and Health" Dr. Bodog F. Beck states in Chapter VIII, page 116, on "Honey in Surgery", that "Honey applied to ulcerated surfaces has a unique function. Soon after its application a profuse and intense centrifugal flow of lymph is noticeable and the entire torpid surface of the wound becomes soaked in fluid. This leucocytic lymph collection which honey produces has not only a bactericidal power but the rinsing function of the free flowing liquid will greatly contribute to the cleansing of the wounds and will stimulate and promote granulation and healing."

While this was fresh in my mind I had the questionable pleasure (?) of receiving a severe cut on my thumb with a circular saw. The cut was over an inch in length and at least one-quarter of an inch in depth. Naturally all the flesh was clean cut away. It was not like a clean cut or even a tear. The flesh was gone.

I went at once to the honey jug and poured honey over the wound and then wrapped it up with honey on the bandage. The honey seemed to stop the flow of blood from the cut almost at once. The following day when I removed the bandage I found it had not stuck fast to the wound, and the cut looked healthy and clean. In three days the wound was filled up level with the uninjured tissue. There was no hard scab and the healing was the most rapid of any wound I ever had.

Beekeepers of long standing have heard many tales of people who were cured of T. B. and other maladies when they had been told by physicians they had but a few months to live. If this is true we should see that honey is given a trial. When we try it out on ourselves and then if successful bringing it to the attention of our own physician, who is likely to give us a hearing, we will be doing a valuable service to humanity as well as to all producers of honey.

Trotwood, Ohio.

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THE ATHOL TREE

Leslie Burr

Every person who is familiar with the Coachella, Imperial, or Yuma valleys of Southern California, is familiar with the athol tree. It is the dominant tree everywhere. It makes a rank growth along the irrigation ditches where it has been planted, and it is also to be found in flourishing condition where it has not been given any water for years. And remember that the average rainfall of the Imperial Valley is something like an inch a year, and that during the summer months the temperature is above 110 degrees, day after day, —and at times going above 120. But the athol tree flourishes.

While athol is the most common name by which it is known, it is also called "tamarack", "tamarisk" and "tamarix". Yes, and sometimes athol is spelled with an "e",—athel. By reason of the various names, some two years ago I tried to get the facts concerning the tree, but was able to obtain but little information. As I get it, the tree was brought from Asia Minor to the Coachella Valley about 1908, and it really is of the tamarix family, or *tamaricaeae*, to use its scientific name. It is at home here on the desert, and has become the dominant tree for shade and windbreak.

But what first interested me in the tree was the fact that it is an important source of honey. It has two general periods of bloom during the summer months, and the bees obtain considerable surplus honey from it. The honey has a very pleasant flavor and a distinctive greenish color. Another important fact is that the athol honey flow follows the alfalfa, which ceases to be a source of honey during the hot summer weather in the valleys.

As to just how important a honey plant the athol is, I can state that a nuclei that I had last spring produced for me just about 75 pounds of comb honey, one-third of which was athol. This was within the city of El Centro, where it is perhaps a better source of honey than in the country, there being more of the trees within the city than in the country districts.

Imperial, California.

Below: Athol trees by the old abandoned "King Cotton Hotel" at Imperial, California. The hotel is a two-story building. These trees are never given water. Right: Close-up of the athol bloom.

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Editorials

Lowering Prices May Not Sell Honey

A merchant in a nearby city tells of a fellow-merchant who put on a window display sale to reduce his stock of an item on which he was overstocked. The price asked was very low, in fact, so far below current prices that the public was apparently skeptical about the quality of the article offered. Few, if any, sales resulted.

Three weeks later this merchant put identically the same display in his window and marked the price up almost to the level of prevailing prices. The sale was a success.

Is it possible that in some cases honey prices are so low that people are skeptical about the quality or purity of the honey offered? It would be an interesting experiment to make a special on honey and mark it up, instead of down, to see what would happen.

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Importance of Beekeepers' Associations

One of the crying needs of the hour among beekeepers is organization. One of the most important units of organization is the county beekeepers' association. All county associations should be tied up with the state organization and all state beekeepers' associations should be closely affiliated with the American Honey Producers' League, our National organization.

Some states have regional associations, each region comprising a number of counties. Where this plan can be worked out it appears to have some advantages over the smaller county units, especially in sections of the country which are rather sparsely settled.

Usually the organization of county or regional associations falls on one or two people who have sufficient vision, initiative, ability, and energy to inaugurate and carry on a much needed program until, and even after the cooperation of the group is secured. Such work is difficult and discouraging at times but it is worth while for our industry.

Officers of county, regional, state, and national organizations are to be commended for their services.

Honey Getting a Bad Reputation With Bakers

In March, we spoke of the dark, unpalatable, fermented or soured and unfit honey which has been shipped to bakers, thus giving them the impression that all honey is like this. On this question Mr. E. C. Davis of the Extension Department, University of Louisiana, and Mr. George H. Bohne, Assistant County Agent, Luling, Louisiana, have this to say in their "News and Notes for Louisiana Beekeepers," for March:

> Many articles are appearing in the bee journals about the loss of the baker trade which consumed many tons of honey in their products. Bakers complain about dirty, fermenting or bad-flavored honey—especially referring to a carbolic acid odor due to faulty handling of the acid in removing honey from the hives. All of these complaints are falling on the shoulders of the honey producers—exactly where they belong. If we are to regain this outlet we must offer clean honey —and it may be a good idea to forget all about the use of carbolic acid. More about this in the April letter.

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Local Advertising of Honey

Quite a number of beekeepers with honey to sell are writing us that local sales are good. Beekeepers who do advertising in local newspapers are getting good returns on such ads. It does pay to advertise in order to let the public know you have honey to sell.

If all who have honey to sell would advertise in their local papers the present stock would doubtless be reduced considerably in a short time. Advertising pays.

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Educate Yourself in Beekeeping

We read the following in the "Scottish Beekeeper" September, 1938, issue, "If you do not educate yourself in beekeeping some experts will lull you to sleep and you will not get anywhere".

Most of us do things by rote, without asking ourselves why we do them. We need to get right down to fundamentals and at least try to understand the reasons for certain methods of handling bees and merchandising honey that we have been told are orthodox.

Experts, so-called, are usually right, but not always. We do need

experts to help us solve beekeeping problems, but most of us can solve our own problems if we but try. Let's not be lulled to sleep but rather may we use what grey matter we have in our endeavor to find a solution to the many problems that confront the beekeeping industry today.

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Too Many False Motions As we go over the country we find many beekeepers who are doing a lot of unnecessary apiary work. There is a chance to reduce the cost of honey production by eliminating all unnecessary work in the yard.

Let us take up a few of the unnecessary operations. First, some apiaries are located too far from the base of operations, making a total mileage for the year that is entirely too high considering present honey prices.

Second, a vast amount of time is spent in hunting queens when the colonies are over-populous. When it is necessary to requeen, the work should be done in the spring when the beekeeper has plenty of time and when the population of colonies is lowest. One may go further and practice automatic requeening in the fall which has already been described a number of times in these columns.

Third, one who has a series of outyards and practices tiering under to reduce or prevent swarming, should put the additional supers on top. By so doing he may lose a few swarms, but the cost of these swarms will not equal the enormous amount of labor necessary to lift heavy supers off and on every hive when putting empty supers underneath. This means back-breaking work and a large amount of time that adds materially to the cost of production.

Fourth: At the present prices for honey one cannot afford to use expensive winter packing cases. It is now possible to use slater's felt or tarred paper and pack moderately. This gives as good or better results than heavy packing in expensive wooden cases, the cost of which must necessarily add to the cost of producing the crop of honey.

Fifth: Unnecessary trips in the spring and during winter to beeyards located away from home, should be avoided. The time could better be spent in preparing supers and doing all work that can be done in the winter, thus avoiding a crowding of work at the rush season of the year.

The late Mr. George Demuth, editor of this journal, demonstrated that he could produce a paying crop of honey from 200 colonies with a minimum of labor, and others can do the same. Mr. Demuth admitted that he might have lost some swarms, but his operations were confined to practically one month in the year; all the rest of the time the bees shifted for themselves. He saw to it that they had a large amount of honey and pollen and were well packed in the fall, and then did not see them again until he went with a load of supers to give them room for the expected crop.

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Damage Done by Thin or Unripe Honey Elsewhere on page 294 of this issue is an article on water content of honey, or to put it in other words, the specific gravity of normal honey. While specific gravity and water content are not the same, they have a direct relationship, as will be explained.

Bakers and candy makers are very often disappointed because one lot of honey does not react like another which they previously used, and they wonder why. Much of the trouble experienced is due to too high a percentage of water content in the honey. Bakers, candy makers, and tobacco manufacturers sometimes come to the conclusion that they will never again use honey because the formula which was successful with one lot of honey may not be so with the next lot purchased.

Then here is another difficulty, and a very serious one. If a manufacturer purchases a honey that is high in water content, he is quite liable to find in his warehouse later on that same honey fermenting or actually soured. A little acid reaction in honey that is used for baking will do no harm, provided fermentation has not gone too far. But with the candy maker this is a different proposition altogether.

All this goes to show that there is a general ignorance regarding the properties of honey, an ignorance that is shared alike by the buyer and the producer. When the latter learns that a honey of normal water content, below a percentage of 18.6, or, better still, one of 17.0%, is more saleable than a honey of high water content, there will be less trouble between him and the buyer. By

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studying carefully the article on page 294, both the producer and the buyer will come to know what a normal honey should be. If they have the means of determining the water content, they will know better how to proceed with their formulas.

What is the lesson to the beekeeper in all of this? That the practical honey producer should, especially if he is located in the East, leave his honey on the hives longer than he has been doing. Too many beekeepers have an idea that when two-thirds of the cells in a comb are capped over, the honey is ready to extract. This may be true at times, but more often it is not true and the extraction of such combs results in a honey too high in water content, and the buyer will, therefore, pay proportionately less because of this fact, or, worse, refuse to take it at all. The average Eastern producer should leave his honey on the hives until practically all the cells are capped over.

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What to Do With Very Populous Colonies in Spring

Somewhere in Dr. Miller's book, "Fifty Years Among the Bees", he mentions the problem of weak colonies early in the spring. At that time few, if any, packages were available for strengthening weak colonies, and this was a real problem.

In those days a number of the comb-honey producers practiced contracting brood chambers during the honey flow to induce bees to store honey in supers. In many instances colonies with contracted brood chambers did not have sufficient comb space or food—honey and pollen—to produce populous colonies for winter. Consequently such colonies either died during the winter, or reached spring very weak in bees. If these colonies did manage to remain alive they usually built up to normal strength on the main honey flow instead of for it and little if any surplus was stored.

It is interesting to compare conditions then and now. At present, as a result of leaving an abundance of stores in food chamber hives, colonies not only winter better but they are very populous in bees early in the spring. In fact, in some instances, colonies are so strong during fruit and dandelion bloom that they are up to swarming pitch.

Colonies should reach their peak of strength at the beginning of the main honey flow. If they reach their peak too early in the season, before the main honey flow starts, they may swarm if they are not given ample comb space, or, if they do not swarm, they apparently lose the colony morale they should have to store a good crop of honey. The problem then, is to manage colonies so they will reach their peak of strength at the beginning of the main honey flow. This means that beekeepers should know, approximately at least, when the major flow begins.

How, then, should very populous colonies having an abundance of honey early in the season be managed? That depends to a great extent on conditions with respect to the nature of the main flow. In sweet clover and alfalfa regions that give a long-drawn-out flow such colonies may be divided and the queenless divisions given young laying queens. This manipulation requires rather expert management. The beginner or inexperienced beekeeper should not undertake dividing unless he is sure he knows exactly what he is doing, and why.

Another method of handling very populous colonies is to take combs of honey and brood away from them, to be used for strengthening weak colonies or for making up nuclei in order to build them up into normal colonies ready for the main flow.

Still another method consists of raising combs of brood into the third story for the purpose of introducing a young queen that will take the place of the old queen later, when the main flow starts.

Obviously it is better to have very strong colonies, rather than very weak colonies early in the spring, because the strong colonies with an abundance of honey can be used to very good advantage in securing a maximum honey crop.

Dr. C. L. Farrar of Madison, Wisc., told us at the New Orleans meeting that the way to overcome low honey prices is to increase the per colony yield. To attain this, very populous colonies are needed. It seems necessary for beekeepers in the various regions to make a closer study of their respective localities and be ready to apply intelligent apiary management and thus increase the per colony yield.

From North, East, West and South

NORTHERN CALIFORNIA, April 4.

Weather: It is the first week of April and that soaking rain that beekeepers were hoping would come has disappointed them. So far it has not come and from the appearance of the clear blue sky of today we may have to wait till next fall to see another rain. Beekeeping is full of surprises and an April shower may be one of our earlier ones.

Problems: From the date of introduction of bees into California we have never had a complete failure of a honey crop. Like other places, some years may not be as good as others but we have the honey. We have a surplus of honey on hand today. Why should we worry? But we do—we worry because we have too much honey and we worry for fear of a failure the coming year. Every beekeeper is busy today getting ready for a big crop in 1939. We have more beekeepers each year and they are better beekeepers. Duties are lowered so that other countries can send in their honey. Is there any good reason for less honey and better prices?

Never has there been a greater need of clear thinking on the part of beekeepers than right now. Never has there been such a need for education and skilled work in the production and marketing of honey. We have said so much already about the careless handling of honey that we are at a loss to know what new to offer.

A beekeeper today tells us that a few years ago he could sell his entire crop of fruit blossom and other dark honeys to bakers. He cannot do it today and wants us to tell him why. It seems to us that that question could be answered by any beekeeper who reads the bee journals, to say nothing of other literature available. Today we asked this question of ten beekeepers: "How many bee journals do you read?" and seven of them answered "None." One of the ten read the American and another read Gleanings and the third read Item. We'll likely get a good roast from some California beekeepers for exposing this ignorance. These are facts, however, and when the roast comes it will likely find its way to the waste basket.

We must give more serious study to our problems. We must cut our expense of production and we must take more and better care in preparing our honey for the market.

Our journals are awake to the seriousness of this problem and are giving their best efforts to us in finding a remedy.

As the season progresses beekeepers are experiencing more and more the need of leaving plenty of honey on their bees for winter. As we go from apiary to apiary (as inspector) we find "57 varieties" of conditions of bees. This is another condition that can be remedied by better beekeeping.

From our line of complaining someone may conclude that California is behind the times in beekeeping. We are not; we have some of the best beekeepers to be found anywhere. Our complaint is that we do not have enough of the latter. Beekeepers who made a resolution last October that 1939 should see an improvement in production and a greater effort along the line of marketing, made no mistake.—Cary W. Hartman, Oakland, Calif.

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SOUTHERN CALIFORNIA, April 3.

Weather: Cloudy skies with high fogs and cool days has been the rule since our last letter. We have had several nice showers with possibly an inch of rain which has kept the ground moist near the surface. Grass and flowers are coming on slowly, and as far as comfort is concerned the weather is all that any one could wish for. Bees are in excellent condition where an abundance of honey was left on the hives last fall and with a reserve of fat combs stored away in the extracting house, just in case. Well, the beekeeper has done his part and all is ready when the honey flow comes.

Honey Crop—Past and Future: The 1938 crop is a thing of the past with not to exceed five per cent still in the hands of the producer. The future looks only fair. Rainfall is not sufficient to assure us a crop of honey.

Market: There seems to be a slight strengthening of prices in both honey and beeswax since our last letter. A few cases will be carried over by the producer but by far the greater number of bee-

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keepers will take what the market offers and hope for better prices in 1939. We must be optimistic. We were talking with a large farmer today and he said, "I think that things are on the up-grade and that farm prices will be better this year". We hope that he is right.

Miscellaneous: How easy it is to look at an exhibit that some one else has labored to construct and say, this should be changed and that should be thus and so. After one of these inspectors had remarked that the exhibit at the S. F. World's Fair did not have enough action and was not attracting the people, he received this reply from one who had labored to make the exhibit a success, "I will venture to say you can go to any exhibit in the building, count the people who stop and look it over, and if you do not find that we have two people looking at our exhibit to one at any of the others I will stand the treats." The result: well, the critic changed his mind and decided that we had a pretty good exhibit after all.

While the writer has not visited the Fair as yet, we have had some experience in constructing exhibits at fairs and orange shows, and will say that the beekeepers have one of the sweetest and most interesting subjects on the whole list.

During a conversation with a large manufacturer of beekeepers' supplies we were asked this question, "Why are so many beekeepers going over to the eight-frame hives"? In the editorial column of Gleanings for April, we read; "What about comb honey?" The eight-frame Langstroth hive has always been considered primarily a comb honey hive. Do the two questions dovetail together and does one answer the other?

There has been little swarming to date. One swarm came to a stack of combs in the yard here in town April 1. Often we will have gotten ten or a dozen by this date. Back-lot beekeepers and colonies in buildings usually furnish us from one to two dozen swarms that come to the stacks of surplus combs that we have not yet taken to the out-apiaries for the honey flow.

Orange will be blooming within two weeks and here is hoping that the weather warms up a little and that the bees are given a chance to do their best for they are sure up and ready to go.

Here is hoping that you come to see our Fair in the West and that we will get to see your Fair in the East.—**L. L. Andrews, Corona, Calif.**

TEXAS, April 1.

Weather: March has not been agreeable to the bees. Over the southern part of Texas increasing drought accompanied by low temperatures has reduced spring brood rearing to a minimum and retarded it several weeks. At the same time it has done away with the blooming of any nectar-bearing plants. At the end of the month it appears as if all of those plants which give the spring honey flow are making a short and combined honey flow. This honey flow will not be sufficient to give any more than feed for the spring brood. It is the opinion of many beekeepers that a honey crop in this section of Texas depends on what mesquite will do in April and May. March is the tenth consecutive month with extremely low rainfall and is the driest period of that length which has occurred during the history of the weather as it is kept by the meteorologist in this section. The only good thing about the weather conditions is that the same conditions which are retarding the blooming of plants has retarded the building-up period of the bees. Interviews with beekeepers vary slightly. Some few are optimistic but the majority of beekeepers are looking for a much less than normal crop. Several package men say they will not have sufficient bees to fill orders.

Miscellaneous: Preparations for the Texas Beekeepers' Association meeting at Waxahachie are widespread. Reports coming from every section of the State indicate that there will be a very large attendance at the meeting June 23 and 24. The night of June 22 a popular science program will be given by the faculty of Trinity University for early arrivals. June 23 two general sessions of the Association and two of the Ladies' Auxiliary will be held. At night the annual Beekeepers' Buzz will be held. The morning of June 24 the organizations will hold their final session and business meeting. A fine program with many Texas beekeepers as speakers and out-of-state speakers is being prepared.

On the afternoon of June 20 the Ladies' Auxiliary will give an informal Beekeepers' Buzz at the Witte Museum in San Antonio honoring Mrs. Harriett Grace of the American Honey Institute, Miss Barber, and others interested in honey as it is used in cookery, who will attend the convention of the National Home Economics' Association.—**H. B. Parks, San Antonio, Texas.**

VANCOUVER ISLAND, April 1.

Weather: On this Island we have come through the winter with only patches of snow in places, probably 6 to 10 inches in parts which lasted at the most only two days. But it must be borne in mind that there is a tremendous variation in the different districts. For instance, Cowichan Lake, a very popular Mecca for apiarists because of its fireweed, generally counts its snowfall in feet and all logging camps have to close down on this account.

There is also a great difference between the North and South of the Island so it will be understood how difficult it is to talk of the weather as a whole. We write from a very sheltered part about 40 miles north of Victoria and the rain and snow have been negligible, in fact, we are rather anxious about the coming summer's water supply but are hoping for copious rains between now and then.

Apiarists from dry regions have their colonies strong for early clover flows and then extract and transport them to the fireweed districts of which Cowichan Lake is one of the most favored places and can be depended upon to double the season's yield.

Colony Conditions: Bees are very active and have been so more or less since January. Experienced beekeepers know that this diminishes stores considerably and are on the lookout. In fact, several reports have come in of colonies petering out for this reason, even when stores were considered sufficient. However, maple and alder are showing blossoms and this will save the situation if weather conditions—wind, rain, and cold, are favorable.

Miscellaneous: With everything looking promising it is impossible to foresee the outcome for the season's yield. We who are dependent on small amounts of a dozen different sources—maple, alder, fruit, clover, etc.—are entirely at the mercy of the weather, while those with sweet clover, fireweed, alfalfa, etc., have a longer nectar yielding period. But the flavor of the latter is not to be compared with that from the mixed sources which is variable from year to year but always most delicious and sought after by epicures in the honey world.

Naturally, commercial men never consider keeping bees under these uncertain conditions but have their apiaries in the productive areas.

The Alberni district is another favored location on account of the fireweed and the established beekeepers have it all to themselves as it is too far to transport bees from other areas.

If ever our much-talked-of West Coast road is finished certain valleys up there will be a beekeeper's Mecca owing to the luxuriance of the vegetation. We have previously mentioned the case of the man (bonafide) who took two colonies up and brought 24 down with a little load of 1000 pounds of honey. It sounds like a dream but is perfectly true!—F. A. Greenwood, Duncan, B. C.

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COLORADO, April 4.

Weather: As we are emerging and passing into the balmy spring, we are looking back to the good and the bad points of the winter that we just left behind us. The state as a whole has had a considerably colder winter than that of a year ago. This is especially true for the mountains and the west. The San Luis Valley experienced a full month of daily sub-zero temperatures. On the other hand, the Arkansas Valley on the eastern slope, only a couple hours drive from San Luis Valley, had a very mild winter with the mercury dipping down to zero on only one or two occasions during the whole winter. Snows, general in character, have been quite common on the bill of fare during the winter, bringing the accumulated precipitation for this year up to about twice that of normal. The mountain ranges, with their ghostly white robes, hold in store to be "on tap" later bounteous reserves of deep snows, exceeding those of several years past. This, together with anticipated snow falls during the next few weeks, will be "oodles" for irrigation requirements during the first part of the summer at least.

Conditions: The condition of the honey plants is very encouraging, and where the bees have wintered well a crop of honey can reasonably be expected if other factors are equal. Winter losses on the Eastern slope were very small, often no loss could be counted, and the bees at this date are expanding their brood nest at a rapid rate, being stimulated by early pollen and some nectar. Where supplied with sufficient stores these colonies will be of storing strength long before the alfalfa flow which comes on about the first of June. The mountain valleys and the Western slope, however, report a winter loss of from 10 to 15 per cent, and in some cases much heavier with the colonies weakened considerably.

Market: The honey market has been somewhat sluggish this winter with the prices weakened in general. Yet, reports are that most beekeepers will be well sold out before any new honey is ready for the market. Again, the spectre of

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another grasshopper plague is making its appearance in Eastern Colorado, and extensive plans are formulated for wholesale destruction of this pest. Hatching hoppers were reported seen near Colorado Springs as early as March 20.—G. A. Pauli, Pueblo, Colo.

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SOUTH DAKOTA, April 1.

Weather: It has been an excellent winter for bees. The first day of spring, March 21, saw the first extended flight of bees and for the following four days they were active, searching diligently for pollen; but, of course, there was none. The pollen supply is likely very short as the supply last fall seemed unusually meager.

Bees: It is still too early to make an accurate estimate on winter loss as colonies are still in packs, and according to custom and the weather, will likely remain there for another month. However, some preliminary reports indicate losses ranging in different yards from two to more than ten percent. Top entrances again assert themselves as preeminently successful. Double stories and top entrances, by virtue of distinction, must eventually become the modus operandi.

It seems now that the demand for packages will be lighter than last year. This is due to several factors, including the lower price of honey and a better than average winter for bringing colonies through; also to the fact that fb seems very well under control there were less diseased colonies last fall to be destroyed.

Honey: Prices to stores were shaded slightly toward spring with sales continuing in good order. No more honey remains among producers now than is likely to be used up before the next crop. Public acceptance this year seems to be considerably better than last year.

Inspection Law: A new law passed by the Legislature is intended to provide for the inspection of bees by taxing beekeepers 20 cents per colony for all the colonies they own, as I understand the copy of the bill.

As far as I know all other industries in this state have always been aided by state appropriations. Now why should beekeepers be the only ones among primary producers to stand their educational and disease control costs directly from their own pocket? However, if we can do it, then as a matter of justice, let the other industries do the same.

Of course, there's another side to the question. Why should, let us say, a beekeeper who keeps his 200 or 300 colonies clean by his own strict attention to business be required to pay a 20-cent tax per colony so that another negligent beekeeper may have the benefit of inspection? It's something like hanging an entire group of men so as to get the one criminal among them.

An alternative, which may sound a bit radical, but which would give immediate and absolute results, would be to impose a substantial fine against any beekeeper who harbored diseased colonies. Under this arrangement the disease would be eliminated over night, for any beekeeper worthy of the name knows the nature of the disease and with the information available can quickly learn how to end it. It would put a quick end to fb here in South Dakota where nearly all the beekeepers are commercial operators.—J. F. Norgren, Junius, S. D.

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NORTH CAROLINA, April 4.

Weather: The winter in North Carolina has been very mild throughout the State, with very little snow but plenty of rain.

In the warmer sections the bees enjoyed balmy spring-like weather through the entire season with very few freezing spells. Certain flowers were blooming practically all winter permitting the bees to gather pollen and some nectar from maple and other plants. The favorable conditions for brood-rearing have brought many colonies up to mid-summer strength. Numbers of reports show that the bees are in excellent condition and the fine weather continues through the first week in April.

Prospects: The outlook is very promising for a good season for the production of honey. Beekeepers are pleased with the prospects and some of them believe this will be a record-breaking honey season if the present conditions continue. If this promise is fulfilled the generous crop will come on a well-exhausted market as there is very little honey remaining in the hands of producers at this time. While conditions are very favorable, it is impossible to foretell what the harvest will be from tupelo and many other plants as we may yet have a freeze or frost that might nip the buds; also, the weather conditions at the time of the blooming of these plants may cause a heavy yield or a light yield and sometimes a practical failure. We can only hope to have normal weather conditions during the honey flow.—C. L. Sams, Raleigh, No. Car.

MONTANA, April 2.

Weather: Weather conditions are better for bees this winter than I have seen here. We had 25 below one night and zero two nights. There has been very little rain. Frost is out of the ground. Grass and dandelions are beginning to bloom. Here in the valley there has been little snow, not more than six inches at any time. Looks as if we should have spring two weeks earlier than the average.

Market: The market was very good up to February, and is not so bad locally in small lots but in truckloads in the larger markets it is very bad. It should pick up in the near future. The grocery stores are selling honey almost normally and many of the smaller honey producers are sold out. One party sold all of his honey and will have to purchase some to meet his trade from now to the middle of July. There are no large lots of honey in this valley for sale. There may be some in Montana being held for better market. Beeswax has been selling from 16 to 22½ cents.

Miscellaneous: Bees are in the best condition they have been in years. Those that were not packed have wintered very nearly 100%. However, if cold weather should come bees wintered without packing would give the beekeepers plenty of headaches. Twenty-five packages of bees came to our station the last day of March. Last year we had a few early packages and they seemed to do as well as those arriving a couple of weeks later.

There are no signs of activity this year here about the purchase of supplies. Not many of the beekeepers are putting in supplies. Practically no package bees are being bought. The price is entirely out of line with the price of honey. Some of the large producers have their own bees in the South and will bring in frames of honey with bees. Years ago that was not considered a success. I believe packages are best. I notice some of the shippers are sensing short sales. I am getting prices radically reduced from January quotation. But even that will not stimulate many sales. I don't see any one going out of beekeeping here but some are quitting other places. One party told me he may kill his bees this fall and make a trip to Germany.

There is some speculation as to what caused the honey flow to stop during the middle of the season last year. There may have been an insect working on the flowers.

Looks like we shall have plenty of irrigation water. Lakes are frozen over fifteen miles back in mountains from the valley with 143 inches of snow there.—Parson Pile, Corvallis, Montana.

ONTARIO, April 5.

Weather: March was a cold month here in central-southern Ontario with much snow in evidence all through the month, and at this late date we still have a lot of snow in many places and back roads are in many cases impassable for cars. A very bad month for the bees in so far as flight was concerned and locally the bees had no flight until March 24, and then only a partial one. In fact, colonies that were covered with snow have had no flight as yet and we hardly know what to expect. Owing to cold weather and bad roads we have done nothing yet in the way of examination for stores but we are getting a lot of reports saying that stores have been used heavily and in many cases starvation is in evidence. Personally, we hardly know how to explain it but the fact remains, that during the past few years the bees have used much more stores than they did formerly as we rarely had a colony starve, and spring feeding was the exception. But during the past three or four years we have had a number of colonies starve and we have never knowingly stinted on stores.

On March 30, when in Toronto, I happened to meet a well-known beekeeper from near Lake Erie who operates 1000 or more colonies. He told me that he would have to do a lot of spring feeding and, owing to the very low price of honey he was getting, a shallow super for each colony filled with honey should be left on for winter to cut down sugar feeding to a great extent. While I dislike the double brood chamber for many reasons, it looks as though we will have to use them nevertheless for the same reason—to cut down expense of feeding when honey is so cheap.

We recently sold a carload of buckwheat honey at the lowest price ever accepted by ourselves and it looks as though real necessity may force us to do some things regardless of whether we like it or not.

Wintering Conditions: Our bees are located in about 20 different yards and of these only five or six are open to the east winds. This past winter our worst snow storms were from the east, and to make matters worse, we had several rainstorms following the snowfalls, and severe freezing weather immediately after the rains. As a result ice was formed two inches or more thick, in two or more layers among the snow, and what a job it was to dig the snow away so that bees

could fly when weather was warm enough! Our one source of satisfaction was that only five apiaries were so situated and the other 15 had no drifting of snow to speak of. The most ideal spot for an apiary is in the center of a bush lot that has a clearance to allow the bees to be placed there. It is a satisfaction to know that regardless of how bad the snow storms are, there will be little drifting, and I feel sure that bees so situated will be better off than if covered deeply with snow.

Miscellaneous: This is an age of debunking and we have become used to having our pet illusions rudely shattered by the scientific minds that do the most of said "debunking". I thought of that when reading the article on page 151, March Gleanings. Limited space permits me to make only a few comments on this subject, as I think it applies to Ontario and other places where the bees often go four months or more without a flight. Supplying an abundance of pollen to colonies so that winter brood rearing will be accelerated is the gist of the article in question and the author after describing conditions of colonies on January 28, when they found some colonies with lots of brood and others with but little brood, asks, "Which of the colonies will come out best in the spring?" And then he answers that the ones with lots of brood because "those that do not raise young bees will come out weaker than they were last fall because of the normal dying off of the old bees". This may be true (but I doubt it) for Wisconsin, but for Ontario and other similar latitudes I think such teaching is rank heresy and not true to practice. The late Wm. McEvoy used to say that in winter brood rearing it costs the lives of three old bees to rear one young one, and I do not think he was far out in his estimate. Extensive brood **feeding** is essentially the work for young bees and any beekeeper must have observed that a queenless colony will hold its bees for a long time but once a queen is introduced, these old bees soon disappear.

At our apiaries in Wentworth County we have most of the bees in a small hive, as used by the late Mr. McEvoy. It has quite a deep frame and the size is a few cubic inches smaller than the 8-frame Langstroth hive. We do not like it for summer handling but as for wintering, some 15 years or more has proved that the teaching I am criticizing is faulty, to say the least. In these apiaries we also have a number of standard ten-frame Langstroth hives with food chambers. And the fact is that year after year these small deep hives that are made solid with stores each fall so that **winter brood rearing cannot take place,** are without exception the strongest in the spring and always ready for the clover flow. As to giving combs of pollen our trouble is to keep from having too much pollen in the hive—possibly a matter of location.—J. L. Byer, Markham, Ontario.

A BEEKEEPERS' SCHOOL

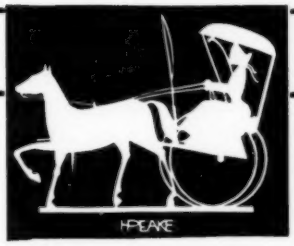
Several outstanding Connecticut beekeepers are organizing a school for beekeepers at the apiary of A. W. Yates, Inc., in Hartford. The course, which is gratis, began on Saturday, April 29th, at 2 P. M., and will continue each Saturday afternoon, weather permitting.

The tentative schedule offers instructions in "Spring Inspection" by W. H. Kelsey, State Deputy Inspector; "Swarm Control" by Chas. Rost, Secretary, Connecticut Beekeepers' Association; "Swarm Capture" by E. L. Baker, "Champion Bee Hunter of America", "Supering for Extracted Honey" by Roy Stadel, past president of Connecticut Beekeepers' Association, assisted by Mrs. Stadel; "Supering for Comb Honey" by Benj. Ellison, Vermont and Connecticut Producer; "Queens and Queen Rearing", by Allen Latham, queen breeder and international authority on apiculture; "Preparing Bees for Wintering", by Prof. L. B. Crandall, Apicultural Extensionist, Connecticut State College.

Simultaneous with the course in beekeeping, the Women's Auxiliary will conduct a school for the "Use of Honey in the Home" directed by Mrs. H. Louise Yates.

It is proposed to issue certificates of "Bee Master," "Expert Bee Master" and "Honey Dietitian" to proficient participants in the school, which should meet the qualifications of 4-H Clubs, Boy and Girl Scouts, who will be eligible to attend.

There will be no tuition fee required. Persons interested should enroll on or before April 22, with Claude L. Yates, 15 Chapman St., Hartford, Conn.

Spinster  Jane Says:

Our big snow-banks are melting gradually, and the snow going in the proper way, if we are to avoid a flood. No April rains yet, but when they do come! ! One never can be too sure of April. She is always called "A fickle jade." Isn't it queer that we speak of April as "she", but never so of March? The latter is very much masculine, —at least it has masculine traits. "Roaring," "windy," "blustry," are never attributed to any "she." It must be because April is sweet, placid, balmy,—perhaps a bit cold, and often "teary." Women's great weakness is a love for sentiment and, in spring, for romance. Many of us like it better in reading than in real life.

Women can be, and usually are, when the need arises, as practical and businesslike as any man. Bees have shown us the way. If those little workers can build up a home, keep it clean and sanitary, also well stocked with food, besides caring for, feeding, rearing, and training all the children of their colony, why cannot a woman become just as well fitted to do the same? If they are not, is it not because they have been too long dependent upon man?

The day for the "clinging-vine" type has long since passed away. There has been just as great evolution among humans as in the beehive. Drones were once workers, helping support the young, bringing food, etc. Is their degeneracy into helpless loafers because of their being spoiled by over-indulgent, admiring lady-bees? If so, what a lesson for women!

Women, not so many generations ago, were depicted as weak clinging-vines, while man was a most chivalrous knight, fighting dragons, or wicked knights for his lady's protection. A new era began. Men were demanded wholesale for war or for other great enterprises, their ranks were thinned. Then woman woke up, tried her wings a bit, found she could use them, and got along very nicely alone. But listen to a bit of warning. The pendulum must not swing too far this way or men will become like the drones, and women will be transformed into militant, masculine Amazons, brazen and bold. Woman's greatest charm is charming effeminacy, but not weakness.

Spring has a softening influence even on spinsters, you see.

A Lesson in the Daily Comic Strips

The comics, which give us wholesome pleasure and many hearty laughs, really do a bit more good than that. A small boy, near here, when urged to eat his spinach, asked quaintly, "Mamma, if I eat spinach, will I grow to be a strong man like Popeye?" His mother replied that it would make him big and strong, and since then the spinach is eaten without a whimper. Can some one not make a series of comics stressing the eating of honey for health?

In a recent edition of our paper, "Dan'l," in the series entitled "Lena Pry", declares, "Bees don't sting daft folks." It's only a bit of nonsense, but there is some shred of truth in it. People who disturb or annoy bees, must be a bit daft—daft not to know something of the nature and habits of these small winged workers. All beekeepers pronounce folk daft who are panic-stricken when entering a bee-yard where thousands are flying. Bees, if treated right, are usually mild tempered. Thank goodness, "Dan'l" proves that I am not daft because I usually get plenty of stings. The bees quite often resented my hoeing in the garden, right in their path to and from clover fields. Do you suppose that means I should give it up, move my garden, or move more slowly?

Who Gets the Worst of It?

Honey Boy got plenty of stings, too. They rarely swelled on him, he was so used to it. I fancy when he goes beekeeping again, the bees will get a surprise. He is so filled with acid from working in a silk mill that the handles of silver spoons and knives he touches, or rather uses, turn black. Will this affect him or the bees most? Time will solve that question.—**Spinster Jane.**

XUM

WHO'S WHO IN APICULTURE

To supply a handy reference of the names and addresses of state and provincial apiary inspectors, secretaries of beekeepers' associations, extension workers in beekeeping and other information often needed by our readers we have corrected our Who's Who in Apiculture, as of April 1, 1939.

State or Province	Beekeeping Taught in Agr. College	Bees on Combs Admitted	Ext. Comb. Net Wt. Law		Inspector State or Province	Secretary State Association
Alabama	Yes	No	Yes	No	Thomas Atchison, Mont.	J. M. Robinson, Auburn.
Alberta	No	No	Yes	Yes	S. O. Hillerud, Edmonton.	S. O. Hillerud, Edmonton.
Arizona	No	Cert.	Yes	No	W. A. Crockett, Phoenix.	W. A. Crockett, Phoenix.
Arkansas			No	No	J. V. Ormond, Elba.	J. V. Ormond, Elba.
B. C.	No	No	Yes	Yes	A. W. Finlay, New Westm.	A. W. Finlay, N. Westm.
Calif.	Yes	Cert.	Yes	Yes	H. M. Krebs, Sacramento.	C. W. Hartman, Oakland.
Colorado	No	Cert.	No	No		L. R. Rice, Greeley.
Conn.	Yes	Cert.	Yes	Yes	R. B. Friend, New Haven.	Chas. J. Rost, Meriden.
Delaware	No	Yes	No	No		John M. Amos, Newark.
Florida		Cert.	Yes	Yes	R. E. Foster, Gainesville.	W. H. Williamson, Aub.
Georgia	No	Cert.	Yes	Yes	J. J. Wilder, Waycross.	J. G. Rossman, Moultrie.
Idaho	No	No	Yes	Yes	W. T. Callender, Boise.	K. M. Hutteball, Boise.
Illinois	Yes	Cert.	Yes	Yes	Carl E. Killion, Paris.	H. Taylor, Pleasant Pls.
Indiana	Yes	Cert.	Yes	Yes	J. E. Starkey, Indianapolis.	J. E. Starkey, Indianapolis
Iowa	Yes	Yes	No	No	F. B. Paddock, Ames.	F. B. Paddock, Ames.
Kansas	Yes	Cert.	No	No	R. L. Parker, Manhattan.	W. N. Cline, Fredonia.
Kentucky	Yes	Cert.	No	No	W. A. Price, Lexington.	W. A. Price, Lexington.
Louisiana	Yes	Permit	No	No	W. E. Anderson, Baton R.	E. L. Garon, Donaldsonv.
Maine	No	Yes	Yes	Yes		
Manitoba	Yes	No	Yes	Yes	L. T. Floyd, Winnipeg.	L. T. Floyd, Winnipeg.
Maryland	Yes	Cert.	No	No	G. J. Abrams, College Park	G. J. Abrams, College P.
Mass.	Yes	Cert.	Yes	Yes	B. N. Gates, Boston.	W. Copeland, Lexington.
Michigan	Yes	Forbid	Yes	No	V. E. Mock, Lansing.	R. H. Kelty, E. Lansing.
Minn.	Yes		Yes	Yes		N. J. Ellingson, Northfield
Miss.	Yes	Cert.	No	No	Clay Lyle, State College.	Clay Lyle, State Col.
Missouri			Yes	Yes		
Montana			Yes	Yes		
Nebraska	Yes	Cert.	Yes	Yes	L. M. Gates, Lincoln.	C. A. McGuire, Lincoln.
Nevada	No	No	Yes	Yes	Geo. G. Schweis, Reno.	Mrs. Frank Lima, Fallon.
N. H.	Yes	Cert.	Yes		Geo. Barton, Meriden.	H. F. Holt, Manchester.
N. J.	No	Cert.	Yes	Yes	P. L. Holcombe, Lambertv.	E. G. Carr, Pennington.
N. M.	No	Yes	Yes	Yes		
N. Y.	Yes	Cert.	Yes	No	A. C. Gould, Albany.	E. T. Cary, Syracuse.
N. C.	Yes	No	Yes	Yes	P. G. Craddock, Raleigh.	F. B. Meacham, State Col.
N. D.	Yes	Permit	Yes	Yes	J. A. Munro, Fargo.	J. A. Munro, Fargo.
Nova Scotia	Yes	No	Yes	No	H. G. Payne, Truro.	E. D. Craig, Kentville.
Ohio	Yes	Cert.	Yes	Yes	Chas. A. Reese, Columbus.	W. E. Dunham, Columbus.
Okla.	Yes	Cert.	Yes	Yes	J. M. Goin, Oklahoma City.	J. M. Goin, Okla. City
Ontario	Yes	No	Yes	No	E. J. Dyce, Guelph.	E. J. Dyce, Guelph.
Oregon	Yes	Cert.	Yes	Yes	A. Burr Black, Corvallis.	H. A. Scullen, Corvallis.
Penn.	No	Cert.	Yes	Yes	H. B. Kirk, Harrisburg.	H. M. Snavely, Carlisle.
Quebec	Yes	No	Yes	Yes	Henri-J. Plourde, Quebec.	Henri-J. Plourde, Quebec.
R. I.	No	Cert.	Yes	No	A. E. Stene, Providence.	C. P. Cornell, Buttonwoods
Sask.	No	No	Yes	No	R. M. Pugh, Regina.	D. B. Pugh, Fort Qu'Appe.
S. C.	Yes	Cert.	Yes	Yes	J. A. Berly, Clemson.	R. H. Berly, Lexington.
S. D.	Yes	Cert.	Yes	Yes	Chas. S. Weller, Pierre.	
Tenn.	Yes	Cert.	Yes	Yes	L. E. Smith, Nashville.	G. M. Bentley, Knoxville.
Texas	Yes	Cert.	Yes	Yes	C. E. Heard, San Antonio.	H. B. Parks, San Antonio.
Utah	No	Cert.	Yes	Yes	W. H. Hendricks, Salt L.	A. W. Anderson, S. L. City
Vt.	No	Yes	Yes	Yes	Charles Mraz, Middlebury.	Chas. Mraz, Middlebury.
Va.	Yes	Cert.	Yes	No	H. W. Weatherford, V. H.	H. W. Weatherford, V. H.
Wash.	Yes	No	Yes	Yes	M. F. Mommsen, Tacoma.	R. C. Immele, Toppenish.
W. Va.	Yes	Cert.	Yes	Yes		
Wisc.	Yes	Permit	Yes	Yes	C. D. Adams, Madison.	H. J. Rahmlow, Madison.
Wyo.		Cert.	Yes	Yes	C. L. Corkins, Powell.	

United States—Investigation and Demonstration in Beekeeping, James I. Hambleton, Bureau of Entomology and Plant Quarantine, Beltsville, Md.; Southern States Field Laboratory, W. W. Whitcomb, Baton Rouge, La.; Pacific Coast Laboratory, Frank E. Todd and Geo. H. Vansell, Davis, Calif.; Inter-Mountain Laboratory, A. P. Sturtevant, Laramie, Wyoming.

Dominion of Canada—Investigation and Demonstration in Bee Culture, C. P. Gooderham, Dominion Apiarist, Experiment Farm, Ottawa, Canada.

American Honey Producers' League—Pres., George H. Bohne, Luling, La.

Southern Beekeeping States' Federation—Pres., M. S. Fortune, Mayhew, Miss.

Apiary Inspectors of America—Pres., J. E. Starkey, Indianapolis.

American Honey Institute—Chairman, M. S. Stone, Ogden, Utah.

National Ladies' Auxiliary—Pres., Mrs. Irene Duax, Chicago.

Texas Apicultural Research Laboratory—H. B. Parks, Rt. 1, San Antonio, Texas.

Extension Specialists in Beekeeping—Alabama, W. A. Ruffin, Auburn; Alberta, S. O. Hillerud, Edmonton; California, J. E. Eckert, Davis; Connecticut, L. B. Crandall, Storrs; Delaware,

(Continued on opposite page)

Institute News Notes

Where Are You Going Honeybee?

You'd be surprised if you could see
The tables that are calling me.
I bring Americans dessert,
Your daddy eats and gets alert,
Your mother likes the honeycomb,
There's nothing better in the home.
It keeps her strong and pretty, too.
She gives to Jack and little Sue.
It keeps the baby plump and strong
And life at home's just one sweet song.
So now I wish you, dear, good day,
To serve this food I must away.

H. M. G.

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Honey and . . . . ! meant such a demand for window streamers that the Institute will feature the same streamer along with another during the National Honey Week in October. The Institute plans to have an attractive label ready for the Fall Honey Crop. Is there a Honey and . . . . ! window streamer in the store you patronize?

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Why not serve griddle cakes, waffles, or French toast with Honey when you want a good meal that is prepared and served with little effort?

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Why not ask your grocer to include Honey with foods for children during National Baby Week, May 1 to 6

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As a result of the broadcast on Bees and Honey over the Goodyear Tire and Rubber Company Hour on January 31, requests for Honey recipes are still being received.

Just News

The North Dakota new bee legislation, enacted by the recent session of legislature provides for licensing of beekeepers and charging of inspection fees. The licenses range from $1.00 to $25.00 in accordance with the number of hives. The inspection fees are 10c per hive for the first one hundred and 5c per hive thereafter, Licensing began April 1. The legislation was in response to requests from beekeepers for satisfactory provision for the program of inspection and eradication of bee diseases. The North Dakota Beekeepers' Association held a meeting in March and decided unanimously in favor of the legislation.—J. A. Munro, State Entomologist.

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John F. Otto of Forest Junction, Wisc., one of the oldest and most successful beekeepers in the state, passed away on February 26. Mr. Otto won many prizes for honey exhibits at the state fairs and had the distinction of keeping 400 colonies in one location for many years, the largest apiary in the state. Our readers will recall the article appearing in the June, 1937, Gleanings entitled, "400 Colonies in One Yard," by his son, Leonard Otto, who is now carrying on. Our industry, as well as the community, have lost an outstanding citizen and beekeeper.

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Dr. John Anderson, former bee expert at the University of Aberdeen, Scotland, died April 9 at the age of 66 years. His work was outstanding in the advocacy of strong colonies, in contrast to much of the teaching in the British Isles. He made important contributions to the search for the cause and control of the Isle of Wight disease which has caused such heavy losses in Great Britain and on the continent of Europe, but his greatest contribution was doubtless his teaching of better beekeeping, in which regard his genial personality was a vast aid. He is survived by his widow and two sons.

(Continued from previous page)

John M. Amos, Newark; Florida, R. E. Foster, Gainesville; Illinois, V. G. Milum, Champaign; Iowa, F. B. Paddock, Ames; Louisiana, E. C. Davis, Luling; Maine, Prof. Dirks, Augusta; Manitoba, L. T. Floyd, Winnipeg; Maryland, George J. Abrams, College Park; Massachusetts, F. R. Shaw, Amherst; Michigan, R. H. Kelty, E. Lansing; Nebraska, O. S. Bare, Lincoln; New Brunswick, Ersel F. Moore, Prince William; New Hampshire, J. R. Hepler, Durham; New York, Geo. H. Rea, Ithaca; North Carolina, C. L. Sams, Raleigh; North Dakota, F. Gray Butcher, Fargo; Nova Scotia, H. G. Payne, Truro; Ohio, W. E. Dunham, Columbus; Oklahoma, C. F. Stiles, Stillwater; Ontairo, E. J. Dyce and E. C. Martin, Guelph; Oregon, H. A. Scullen, Corvallis; Pennsylvania, E. J. Anderson, State College; Saskatchewan, R. M. Pugh, Regina; South Carolina, E. S. Prevost, Clemson; Tennessee, George Harrington, Knoxville; Texas, R. R. Reppert, College Station; Virginia, H. W. Weatherford, Vernon Hill.

Where we did not hear from states, we repeated last year's information.

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Heads of Grain from Different Fields

Do Bees Prefer Green?

All the bee literature that I remember has recommended white as the proper attire for working among the bees. Has any one ever tried green clothing? We are told to step into or behind a bush (which is green) when the bees become unduly irritated, and wait for them to quiet down before proceeding with further manipulations. Did not Mr. Doolittle once say that a bunch of weeds (green) was better than most brushes for ridding a frame of bees? My bees never seem to take offense if I brush them from a frame with a leafy twig from the privet hedge growing close to their homes. —Henry B. Seward, Youngstown, Ohio.

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Honey and Health—A Gem

I do not need to call your attention to the fact that Dr. Bodog F. Beck's book, "Honey and Health" is a gem—a trail-blazer, but do the honey producers appreciate it at anywhere near its face value to them? Should it not be in all the bee supply catalogs and quoted more in the bee journals? I find it an eye-opener wherever I take it. I have three copies—keep two of them circulating mostly among our family physicians, calling their special attention to the chapters on diabetes and on infant feeding.—Dr. William C. Wilson, St. Charles, Mo.

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There's a Reason

D. H. Norton, Terrell Wells, Texas, in a recent letter says, "I have found that bee hives are at least one thing that goats will not attempt to destroy."

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Rendering Small Lots of Old Combs

In reading the December, 1938, Gleanings, I note, you say: "to render old combs place the combs in a sack." I find that all of the wax cannot be gotten out in such a manner but one can get all of the wax by placing the combs in a five-gallon clean lard can, with a small amount of water in it and set on the fire to heat. As the combs melt add more combs when the contents are boiling hot. Place a wire fly screen over the top of another can which contains a small amount of cold water, and pour the contents of the first can into it. If the contents are emptied through this screen while very hot, one gets all the wax.—E. Litsey, Marshall, Indiana.

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Makes Cans Easier to Lift

At extracting time a good part of our honey is run into five gallon cans. Anyone who has had occasion to work with these cans knows that the "two-way" handles, with which they are equipped, usually fall flush with the top of the cans. As a rule,

Handle of the can lying flat or flush with the top of the can.

Bending the handle so that one can grasp it easily.

it is difficult to pick up these handles in order to lift the cans; with gloves on it is practically impossible. To avoid this inconvenience we bend the handles as shown in the accompanying illustrations. This simple operation is quickly done and it saves a lot of time and wear and tear on the temper.—Benj. Nielsen, Aurora, Nebr.

Snap Shot Sales Suggestion

The other day I stopped at a store to deliver an order of honey that the grocer had requested, and during the interval the grocer began talking of bees. I had just got some snapshots finished at the photographer's, among them one of my apiary. I showed it to the grocer and he became enthused.

"Say, that's fine," he said. "I'm going to keep this. Thanks. I'm going to paste it on a white cardboard and hang it up right here. Then I can show my customers where the honey they buy comes from."

I was somewhat shocked by his brisk conclusions; but the more I thought of it the better I thought of it. If one has a keen looking apiary one may as well capitalize on the fact with pictures. By having fair-sized enlargements made they should draw favorable attention, especially in the smaller grocery stores.—J. F. Norgren, Junior, So. Dak.

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Moving Bees Without Screening

Some beekeepers will defend this practice even to the extent of anger when old-time successful beekeepers question the advisability of the method. We were moving a truckload of some 70 strong colonies early one morning, without closing. One man, a beekeeper himself, was riding on the back of the truck. Being an observing fellow he busied himself watching bees as they came to the entrance of the hives, arose in the air and flew away. When asked, "How many bees do you think were lost in the twelve-mile ride," he remarked, "Oh, about enough to gather a case of honey—120 pounds." We have practices and methods that to the casual observer seem successful, but under the close scrutiny of a careful observer may prove very costly. Admitting that our man was right, what must be the price we pay when bees are hauled hundreds of miles, both night and day, without closing.—L. L. Andrews, Corona, Calif.

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One Way to Capture a Queen

I have found an easy way to capture a queen without fear of injury, by simply running her into a 5-dram homeopathic medicine vial until the frame could be replaced. By keeping the bottle upright she can not get out.—C. E. Kendel, Cleveland, O.

Village Bee Ordinance

Declo, a small village in Idaho, although in a district where beekeepers gain quite a lucrative income because of many acres of alfalfa, sweet clover, and other plants suitable for honey production, has adopted an ordinance prohibiting the keeping of bees within the town limits. Violators are subject to a fine of from $10 to $25. As a rule, there seemed no opposition to the presence of a couple of colonies or so around a residence, especially at a beekeeper's home in town. But Declo has a community school, with busses bringing many pupils from the country. It was feared that some mischievous youngster might hector the insects and arouse their ire, with disasterous results.—L. H. Sweetser, Sunland, Calif.

[As we understand the law, bees cannot be excluded from towns and cities unless it can be proven that they are a nuisance. The American Honey Producers' League, our national organization, might well look into this case.—Editor.]

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The Tide is Turning

The use of honey is spreading. A dealer told me that last year he sold only 25 cases of honey; this year, since my book came out, over a thousand cases. The tide is coming in! And the waves will be soon felt.—Dr. Bodog F. Beck, New York City.

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A Beekeeper Told It

About ten years ago I received a long, rambling letter from a western beekeeper, and the internal evidence was that he was insane. Among other interesting things that he related, he said that he had a neighbor who cast spells over him, this neighbor having among other occult powers that of making himself so small that he could walk into the entrance to a beehive. He had seen this neighbor walk towards his apiary, disappear and later reappear, and as evidence that the neighbor became small and entered the hives, he said that after all such visits there was no honey in any of the hives. This was indisputable proof. The man was insane, but that the neighbor entered the hive is unquestioned. His neighbor was the same man who moved away the honey crop as related in a former tale. He was certainly at all times small enough in another sense to walk upright through a hive entrance, carrying an umbrella.—A. N. Onymous.

XUM

Asked and Answered

Feeding Honeydew Honey

Question.—I have a number of colonies of bees that have come through the winter with a surplus amount of honey in the supers. This honey was made from what we call "honeydew" gathered from the leaves of plants and trees, and since this is near the railroad shops, much smoke and soot seems to be collected with the honey. I think this honey is all right for hive use and I would like to have a suggestion from you as to the best method to use in getting the bees to take the honey from the supers down into the hive sections. It seems to me this would be a good idea as this honey which is unfit for table use could be used to fill up the hive bodies and would make available more honey for the supers when the honey flow comes on. I am not interested in saving the comb in the supers which contains this honey.—C. L. Cook, West Virginia.

Answer.—The only suggestion we have is that you make some increase in your apiary by dividing your colonies and use the honeydew honey for feeding the bees. It is possible, of course, that the bees you have will consume a considerable amount of this honey during the spring months. However, if there should be an unusually good spring honey flow, the bees may not consume all of the honeydew and it would then be carried over, which would be undesirable. One method of inducing bees to take honey out of the combs into the brood chambers is to place a super of combs underneath a brood chamber and to score the cappings of the combs with a hive tool in order to induce the bees to start carrying the honey up into the brood chamber. Honey should be placed under brood chambers late in the evening so that there is less danger of bees starting to rob. You are correct in assuming that this honeydew is all right for bee food during the summer months and cannot be sold as honey.

How to Dispose of Laying Workers

Question.—I introduced virgin queens last fall, and when I looked to see if they were laying I found some of them lost and the colonies had laying workers. I dumped the bees from one colony of laying workers out on the ground some distance away from their location and gave this empty hive to another colony. About a week later I examined some of the other colonies and found that some of the laying workers got into the other hives and killed the queens and started laying in the combs. Now I have more of them. Is there any way to stop this?—Carl Novak, Ohio.

Answer.—Your question would seem to indicate that laying workers in a colony that are shaken off the combs some distance away from the apiary may enter other hives when returning to the apiary. It is a fact that the method of shaking a laying worker colony off the combs some distance from the yard has been recommended. Possibly, however, the danger you have mentioned has not been realized by beekeepers who have advocated this practice. We are of the opinion that the best way to dispose of a laying worker colony, provided the colony is not very strong in bees and not worth requeening, is to place it on top of a very strong colony. It is seldom that a laying worker colony is worth requeening. It is, of course, quite difficult to get a queen introduced to such a colony.

Distance Between Out-apiaries

Question.—How far apart should apiaries be placed in order to avoid over-stocking, and how large should each yard be?—J. L. Parker, Ind.

Answer.—It is more difficult to overstock the average locality with bees than most people think. During seasons of normal rainfall when pollen and nectar are abundant large apiaries may be kept quite close together. During a dry season it is easier to overstock a locality with bees. Large apiaries of 75 or 100 colonies should be placed at least 3 miles apart in order to provide colonies with ample foraging space. Smaller apiaries should be about two miles apart.

Bees Poisoned Again

Question.—Last July I had 55 hives of bees killed from cotton poison (to kill boll-weevil) sprayed from airplanes. These airplanes would scatter the dust from the plane for one half mile or more. Sometimes they would fail to shut off the poison sprayer when they made a circle to come back over the field, and the poison would go for a long distance through the air and woods and fields. On the mornings they would spray a great number of bees would leave the hives and never return, the cotton poison that was in the air killing them. I have spoken to the state representative about having a bill introduced to prohibit the poisoning of cotton by airplane and he has promised favorably, but this being a cotton country, apparently he is afraid of hurting the cotton farmer. I see no reason why the bee industry should not be protected as well as the cotton.—Geo. E. James, Arkansas.

Answer.—There have been some very heavy losses sustained in Texas, Southern California, and other southern and southwestern states on account of the poison dust that is blown over large areas by means of airplanes. In order to acquaint you more fully with the situation, we refer you to page 96 of the February, 1937, issue of Gleanings; page 721 of the December, 1936, issue, and again, page 552 of the September, 1937,

issue. It may comfort you to know that the cotton weevil, or insect that has been causing such destruction, seems to come in cycles. It may completely destroy the crop one year, and the next year it may not appear at all, nor again for a period of ten years. Just what the remedy is, it is hard to tell. The Legislatures of the various states have hesitated to pass any bill prohibiting the wholesale destruction of bees, because there are other interests beside bees represented. Possibly the only remedy now is injunction proceedings.

Too Much Honey in Spring

Question.—I let the bees have one super of honey to feed on this winter. I find they didn't use it up. Shall I remove the super of honey and put other supers on?—Clara K. Baum, Pennsylvania.

Answer.—You had better leave on the super of honey, or food chamber, until the main honey flow starts. Even though the bees have not consumed much of this honey during the winter, they will consume the major portion of it from now until the time the main flow starts. It is surprising how bees convert combs of honey into combs of brood. It takes practically one full comb of honey to produce one full comb of brood. You realize, of course, the importance of leaving an ample supply of honey with the bees during the spring months. There may be a spring honey flow from fruit bloom and dandelion in your locality, some time the latter part of April or early May. If there is, you may need to add a super to each colony, to take care of this honey flow. However, the food chamber should be left on the hive even during this early honey flow. The fruit bloom honey flow is rather uncertain, however, and that is another reason for leaving on the food chamber until the main honey flow starts.

Getting Rid of Skunks

Question.—Please tell me how to get rid of skunks? For two years they have taken the strongest of my bees. I thought I was rid of them but they are at it again early this spring. They even tore out the pieces of wood that partly closed the entrances from five hives and tore out the alighting board from one hive.—Helen La Barge, Michigan.

Answer.—Some strychnine put into an egg broken open slightly and placed near the entrance of the hive usually does the trick. Your druggist will be able to tell you just how much strychnine should be used. A good shotgun can be used to advantage in eradicating skunks. Skunks usually do their work late in the evening. In some instances it is possible to sneak up on them with a good flashlight and then let them have a charge of shot. Traps have also been used.

SACRAMENTO BOUND

The California State Beekeepers' Association will play host to the Annual Conference of the American Honey Producers' League, the American Honey Institute, the Apiary Inspectors of America, and the California Bee Breeders' Association in Sacramento on November 7 to 10, 1939. We are taking this means of personally advising some of the leading beekeepers in the United States and Canada so that they may give serious consideration to the possibility of combining work with pleasure in a vacation trip to California in time for the meetings.

We also want your assistance in outlining a constructive program that will not only appeal to the various sections of the country but which will be the foundation for a bigger and stronger industry in the immediate future. What are the most important problems to be considered? Marketing, with its many ramifications of freight rates, standardization, cooperative selling, advertising, or other methods not yet tried? By-products, to stimulate the consumption and uses of honey? Better strains of bees, to facilitate the problem of disease control, or to reduce the cost of production, or to improve the working habits and temper? We want your suggestions and will appreciate it if you will pass the word around in your county, state or province in order to encourage as many beekeepers as possible to attend the conferences.

The Convention Bureau of Sacramento is a splendid working organization and plans to prepare everything in the way of entertainment, room facilities, and publicity that will make the coming convention the best ever held in the West. The possibility of an over-night boat trip down the Sacramento to the Golden Gate International Exposition at Treasure Island on the concluding day of the convention looms as a possibility at this time—a feature that will long linger in the minds of all who participate.

Plan early to be with us in November and interest other beekeepers in doing likewise. Yours for better bee times in 1939.—J. E. Eckert, Chairman, Arrangements Committee.

XUM

Talks to Beginners

M. J. Deyell

Swarming vs. Snow Banks

About two weeks ago (this is April 8) a beekeeper in Louisiana wrote that his colonies were unusually populous, mainly because he had secured a late crop of honey which he left on the hives instead of extracting it; also that his bees were bringing in nectar and pollen in abundance and that a few colonies had swarmed.

Just a few days ago a beekeeper in Northern Ontario wrote that his bees were resting quietly in the bee cellar and that snow banks four feet high still remained in the bee yard. What a contrast in conditions!

It is not uncommon for packages of bees shipped from southern states in April, to run into a heavy snow storm at destination, in some northern state or Canada. One marvels at the manner in which bees adjust themselves to changed conditions.

Installing Packages in a Cellar

Just the other day I had a visit with a commercial beekeeper from one of the northern-most counties of Minnesota, near the Canadian line. I learned some things about apiary management in that section of the North. He mentioned their method of handling packages received during April.

The weather is usually cold and sometimes snowy in April but spring comes suddenly when it does come. The main honey flow starts relatively early for that latitude. In order to have packages develop in time for the beginning of the major flow they must be put into hives early. And so, some of the commercial beekeepers are using their bee cellars for installing packages. The bees are put into hives in the cellar and left there for a week or ten days, or until warmer weather comes, and then they are set out on permanent summer stands. The cellars are quite dark and the bees do not leave the hives.

These commercial beekeepers save combs containing honey and pollen to put into hives ready for packages. The bees do not have to build combs and can start rearing brood, because honey and pollen are in the hives.

More About Hiving Packages

Most beginners do not have combs of honey to feed packages and it is necessary to use frames containing full sheets of comb foundation. During a heavy honey flow bees will draw out full sheets but usually during the spring months nectar does not come in rapidly enough to have combs built out from foundation, so it is necessary to feed sugar syrup continuously until the main honey flow is on, to enable bees to draw out the full sheets of foundation, also to stimulate brood rearing. As a matter of fact, it does no harm to keep a slow feed of syrup on hives with packages that are fed combs of honey.

A Swarm in May Worth a Load of Hay

Some beekeepers guage their success in beekeeping by the number of swarms that issue from the hives during the season. Early swarming does indicate prosperous conditions within hives.

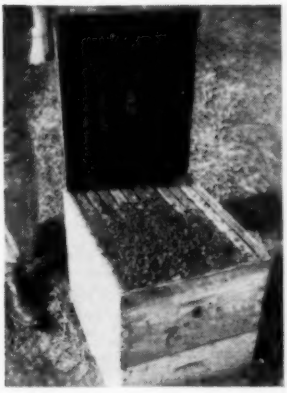
Last year at one of our outyards we found a swarm hanging on a tree on April 28. We hived the swarm and it put up over 100 pounds of surplus honey by the close of the season. However, we like to control swarming, because colonies that are held together put up more surplus than colonies that divide their working forces by swarming.

Management During May

Throughout the North, May is the important month for colonies to build up ready for the main flow beginning sometime in June. It is important that colonies be given every opportunity to make good. The important requirements already referrred to—**comb space, food** and **protection**—should be present. Also, queens that are failing should be taken away and replaced with young prolific queens.

Colonies wintered in single-story brood chambers usually become strong with bees during the dandelion and fruit bloom honey flow, especially colonies that were well provided with stores last

Double-story colony with auger hole in front of upper story, or food chamber.



This hive was opened March 9, to see how strong the colony was.

Another two-story colony very populous in bees with plenty of honey.

fall. In many instances however, such colonies starve during the winter or early spring.

When single-story colonies have brood in eight combs each should be given a super of extracting combs, or more **comb space** for brood rearing and for the storage of incoming nectar. A queen excluder should not be used under the super given, because the queen will need the combs for egg laying. Later on it may be desirable to put the queen down into the lower brood chamber below an excluder, when the main flow starts, if extracted honey is being produced.

Managing Food Chamber Colonies

Colonies in food chamber hives usually become very populous during fruit bloom. An extracting super should be placed on top of each food chamber, over a queen excluder. Some do not put an excluder under this super given but allow the queen to occupy the combs in this super if necessary. This practice may be preferable in regions where swarming is prevalent.

As a rule, the bees use up most of the surplus that may be stored from fruit bloom and dandelion, during the interval between dandelion and clover.

Indications of Swarming

A colony may sometimes prepare to swarm even though comb space is given. In preparation for swarming bees build queen cells. These are usually built along the lower edges of the combs and are easily recognized because they are different from other cells. Instead of being horizontal, as are worker and drone cells, they are built in a vertical position with the opening at the lower end. They resemble peanut shells in appearance and size.

Queen cells when they are first started resemble shallow cups and later on each will contain an egg. The swarm issues usually at the time the first cell is capped which is about eight days after the egg is deposited in the cell cup. Usually swarming can be prevented by destroying all queen cells and giving more supers.

What to Do if Colony Swarms

If a swarm comes out the old or parent hive from which the swarm issued should be set on a new stand five or six feet away, turning its entrance away from the former position. A new hive containing either frames with full sheets of wired foundation or drawn combs should be placed on the old stand.

A swarm may cluster on a limb of a tree. The limb may be cut off and the bees shaken in front of the hive intended for the swarm. It is an advantage to get a frame of brood from another hive to put in the hive receiving the swarm. This causes the swarm to enter the hive quickly and to get established readily.

After two days the parent hive that was moved away a few feet may be given a turn to face the same direction as the new hive. Then, after seven days the old parent hive may be moved to another location, at least fifteen feet away. This moving should be done carefully during the middle of the day when a large percentage of the bees are in the fields. The field bees, when they return will easily find their way into the new hive and thus the swarm is strengthened.

In a short time the old hive that has been moved to a new location will have a young laying queen and will be a good colony for the following year. Occasionally such parent colonies will store some surplus the same season, if there is a fall honey flow.

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CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate—7 cents per counted word each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in the 15th of month preceding.

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CHOICE CLOVER honey in 60's, 6½c. John Bour, Tiffin, Ohio.

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REDUCED prices on comb and extracted. Write H. G. Quirin, Bellevue, Ohio.

FINEST CLOVER extracted honey, 60-lb. cans, 6½c. Irvin Van Devier, Medina, O.

CHOICE clover honey in 60's. R. C. Bish, successor to Moore Apiaries, Tiffin, O.

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FOR SALE—Extracted, all grades. 22 cases comb, at a bargain. N. B. Querin, Bellevue, O.

BALANCE of comb honey, $2.25 per case, plain; wrapped, $2.50. H. R. Shelton, Parma, Mich.

ORANGE, palmetto and mangrove honey in new sixties. Peter W. Sowinski, Fort Pierce, Florida.

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WHITE clover and buckwheat honey in 60's. Finest quality. A. B. McHenry & Son, Stillwater, Pa.

WE BUY AND SELL ALL KINDS COMB and extracted, carloads and less; also beeswax. H. Blitz, P. O. Box 3452, Philadelphia, Pa.

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ASK FOR our new lower prices on our best Michigan clover honey. E. D. Townsend & Sons, Northstar, Michigan.

COMB and extracted honey. Best quality white, also amber. Write for prices. H. E. Crowther, Cass City, Mich.

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FINEST QUALITY white clover honey. $7.20 per case, 120 lbs. Sample 10c. Arthur Thayer & Sons, Freeland, Mich.

HONEY FOR SALE—All kinds, any quantity. H & S Honey & Wax Co., Inc., 265-267 Greenwich St., New York, N. Y.

CHOICE white clover and light amber extracted honey in new 60's, by case or ton lots. R. J. Williams, Attica, Ohio.

WHAT am I offered for 200 cans (new 60's) of light clover honey? Sample 10 cents. The Jones Apiaries, Sauquoit, N. Y.

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COMPLETE line comb and bottled honey, pure clover. Also packed in 5's and 60's. Central Ohio Apiaries, Inc., Millersport, Ohio.

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WELL RIPENED clover in 5's and 60's; fine buckwheat in 5's, 60's, and 160 pound kegs. Sample 10c deducted from order. Coggshall & Son, Groton, N. Y.

CLOVER HONEY FROM CLOVERDALE. Ohio's finest clover extracted in 60's. Sample, 10c. Prices upon request. The Cloverdale Apiaries, Cloverdale, Ohio.

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NEW YORK State comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails my specialty. Edward T. Cary, Midland Ave. and Tallman St., Syracuse, N. Y.

HILTNER'S quality white clover honey is really a fine honey, produced in modern apiaries, extracted with finest equipment, packed in new cans. Prices on request. Ray Hiltner, North Creek, Ohio.

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WANTED—White and amber extracted Honey, any quantity, also Beeswax. Write The Fred W. Muth Co., Pearl & Walnut Sts., Cincinnati, Ohio.

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YOUR WAX worked into medium brood foundation, 15c pound; thin super, 22c. 10 pounds medium brood foundation $4.00. Fred Peterson, Alden, Iowa.

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READY WIRED FRAMES—Scientifically correct wiring results in perfect combs, reduces swarming 75%. Literature free. Sample 10c. A. E. Wolkow, Hartford, Wis.

CARTONS for Cut Comb Honey. New attractive designs with your name and address. Low prices. Fast service. Samples on request. May Carton Co., Box 257, Traverse City, Michigan.

Caucasian Bees and Queens

Reduced Prices

2-lb. pkg. with queen, ...$2.00
3-lb. pkg. with queen, ... 2.50
Queens, 60c each.
No discount.

Safe Arrival and Satisfaction Guaranteed.

P. B. Skinner Bee Company
Greenville, Ala.

Cash Paid

For extracted honey; cars and less than cars. Mail samples and best price delivered Oconomowoc.

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CAUCASIANS

Extra gentle, prolific, long tongue, little inclined to swarm, dependable workers—10% to 40% ahead of Italians. 12 years with them.

CARNIOLANS

Prolific at all times, very gentle, best of workers, build beautifully white combs, most excellent workers. My Carniolan queens headed yards producing an average of 436 lbs. per colony over the whole yard. 32 years with them.

Prices both races:

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Untested queens, each, ... .75
Breeding queens, (1938 reared) 5.00

Both dark races hardier than average Italians and build up more rapidly during the unfavorable spring weather of our eastern and northern states. Packages more convenient for northeastern states and Canada. Less shipping costs, less net cost, arrive in better condition. Free circular.

Albert G. Hann, Glen Gardner, N. J.

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Two-pound packages of bees with Caucasian queens, $2.45 each; for larger size packages, add 70c for each additional pound of bees. Select untested queens, 75c each. For genuine Mountain gray Caucasian bees,

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Brooklyn, Alabama,

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Three Band Italian Bees and Queens

Price List, Via Express Collect

2-lb. package bees with select untested queen .....$2.45 each
3-lb. package bees with select untested queen .....$3.15 each
Select Untested Queens ..75c each
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COMB FOUNDATION at money-saving prices. Plain, wired and thin section. Wax worked at lowest rates. Comb and cappings rendered. E. S. Robinson, Mayville, N. Y.

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HONEY JARS—We would appreciate an opportunity to submit FREE samples on our attractive line of Modernistic Jars, and Round Cylindrical Honey Jars. We will quote you through our nearest supply jobber. Foster-Forbes Glass Company, Marion, Indiana.

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EXCELLENT QUEENS at a reasonable price. Caucasian queens from hardy, prolific, honey-gathering strain, 75c each; 100 or more, 65c. Golden West Apiaries, Manteca, California.

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ITALIAN QUEENS, after June 1st, that produce hardy and gentle bees. Untested Queens, 75c each. Robert B. Spicer, Wharton, N. J.

SPECIAL quotation on your requirements of Italian Package Bees with young, vigorous, prolific queens. Write, Charles Hillock, Valdosta, Georgia.

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BEES—50c per pound. ITALIAN QUEENS, 50c each. Only in lots of 100 or more Two or Three pound packages. James E. Wing, Knights Landing, California.

GOLDEN QUEENS, excellent quality, carefully reared. Will please the honey producer. 75c each. Satisfaction guaranteed. O. E. Brown, Route 1, Asheboro, N. C.

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WILL SELL reasonable for cash, my New York State apiaries of 250 colonies and all equipment, $1500. below inventory for quick sale. Guaranteed free from disease. Bargain, Care Gleanings, Box 40.

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EARLY PACKAGE BEES—Prompt shipment begins May 1. Two-pound package bees with queen, $2.45; 3-lbs., $3.15. Add 25c postage for each package. Choice Italian queen, 75c. Safe arrival guaranteed. Birdie M. Hartle, Reynoldsville, Pa., Box 363.

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Fast and courteous service.
Only 26 hours out of Chicago.

Untested queens	$0.60
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2-lb. pkg. with queen	1.75
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IN LOTS OF FIFTY OR MORE

Queens	$0.50
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Black bees in any size order with Italian or Black queen.

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Queeens	.75

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Untested queens,	$0.75
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Less 15% to dealers.

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First Quality Package Bees and Queens at a Price You Cannot Beat Anywhere.

PRICES

Quantity	1 to 50	50 to 5,000
2-lb. pkgs. with queens,	$1.60	$1.50
3-lb. pkgs. with queens,	2.20	2.00
Untested queens,	.60	.50
Tested queens,	1.00 any number	
Additional bees,	.50 per lb.	

We have shipped several hundred thousand packages and queens in the last 28 years and you are assured of good service, first quality Bees and Queens. Shipments are being made promptly now. No discount from above price.

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Again we solicit your orders for our high quality queens for the season of 1939. Prices as follows: 1 to 10 queens, 65c each; 11 to 50 queens, 60c each; 51 to 100, at 55c each. We guarantee satisfaction and a square deal

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Belton, S. C.

"She-suits-me" queens, 3-banded Italians, most excellent strain: One queen, 75c; 3 queens, $2.00. Stamps accepted for single queen.

Koolairy veil, $1.50 postpaid, SAFIN queen cage, $1, for ten; 15c for one.

ALLEN LATHAM
Norwichtown, Conn.

Three-Banded Italian Queens
Package Bees

Shasta Apiaries

Geo. W. Moore F. W. Chapman

Post Office: Shasta, Shasta Co., CALIFORNIA

EXTRA YELLOW Italian queens that produce bees a little more yellow than three-banded; more gentle and just as good workers. Untested 75c each; tested $1.50 each. Health certificate and satisfaction. Hazel V. Bonkemeyer, Randleman, N. C., Route 2.

THE NORMA ROY APIARY—Italian bees, 2 pounds with queen, combless, $2.00; 2 pounds with queen introduced, 1 comb brood, $2.20. Additional pounds bees, 50c; additional comb brood, 40c. Health certificate with shipment. Norma E. Roy, Hessmer, Louisiana.

BEGINNER'S BEST BET, high quality Italian queens introduced, one standard comb, 2 pound bees $2.25; 3 pound bees, $2.85; Modified-Dadant comb, 2 pound bees, queen introduced, $2.85. Extra queens, 45c postpaid. EPHARDT'S HONEY FARMS, LULING, LOUISIANA.

(QUEENS WITH CHARACTER)—My business almost doubled in '38—there was a reason. I supplied my customers with the best queens that could be purchased. If you haven't tried them, ask your neighbor. I can fill your early orders. Start shipping about March 10th. D. P. Green, Deland, Fla., R. 2.

CHOICE bright Italian queens that are a pleasure to work with and be proud to own. The stock has been bred and selected in the North the past 35 years for good winterers, hustlers, gentleness, and fine color; 75c each; dozen, $8.00; breeders, $6.00. Emil W. Gutekunst, Colden, N. Y.

PACKAGE BEES and Italian queens. N. J. Experiment Station stock. High producing, carefully reared. Bred for business. Queens, 75c each. Two-pound packages, $2.45; three-pound packages, $3.15. Used equipment at bargain prices, none shipped. Stamps taken for single queen. E. G. Carr, Pennington, N. J.

FOR stronger colonies, bigger honey crops and gentler bees try our prolific, well-bred, three-banded Italians. Used for years by leading beekeepers of the U. S. and Canada. They will satisfy you. We send all new light, clean and convenient shipping cages; more than full weight of healthy young bees; select young laying queens of our own production; few or no drones, and no disease. 2-lb. packages with queens, $2.45 each; 3-lb. packages with queens, $3.15 each. Express or mail shipment, f.o.b. here. Select young laying queens, 75c each. Postpaid. Our shipping season opens April 10th. Capacity 100 packages and queens daily. Order early and have your shipping date reserved. H. C. Short, Fitzpatrick, Ala.

MISCELLANEOUS

LABELS—NEW DESIGNS. Samples free. Thoughtgift. 50 Presque, Rochester, New York.

WILL TRADE assorted dahlia tubers for bees or supplies. Art Zink, 2906 N. Kilbourn Ave., Chicago, Ill.

WATCH MICHIGAN! Read Michigan Beekeeper. One year, 50c. Published bi-monthly at 506 E. St. Joseph St., Lansing, Mich. Sample copy, 3c stamp.

9 BASSWOOD SEEDLINGS 2 foot, 35 Caragama hedging Siberian tea tree, 12 inch, or 6 Pink Honeysuckle bushes 10-inch (nectar producers) for $1.00, postpaid. Nicollet County Nursery, St. Peter Minn. (Lewis-Dadant Dealer for this territory.)

DAIRY GOATS

LEARN ABOUT DAIRY GOATS—monthly magazine $1 yearly; sample copy and information free. Dairy Goat Journal, Dept. 919, Fairbury, Nebr.

POSITION WANTED

WANTED—Position as apiary manager or assistant. Have had 12 years experience with bees. Elmer H. Miller, 101 Glendale Ave., St. Clairsville, Ohio.

HELP WANTED

WANTED—Good working experienced beekeeper take full charge 350 hives. W. Hastings, 1204 Cherry, Grand Forks, N. D.

NEW SUPER-QUALITY KITSELMAN FENCE

Heavier, thicker, tougher galvanizing. Finer, longer-lasting Copper-Bearing Steel. **Low Factory-to-You Prices. WE PAY FREIGHT.** 160 styles and heights Farm, Poultry and Lawn Fence; Steel Posts, Gates, Barb Wire, Paints, Roofing. Write today.
KITSELMAN BROTHERS
Dept. 21 **Muncie, Indiana**

1939 Golden and 3-Banded Italian Bees and Queens

2 lbs. bees, 1-Comb brood and queen, each, ... $2.45
2 lbs. bees, 2-Comb brood and queen, each, ... 2.85
3 lbs. bees, 2-Comb brood and queen, each, ... 3.55
2 lbs. bees and queen, combless, each, ... 2.45
3 lbs. bees and queen, combless, each, ... 3.15
Each additional pound bees, ... .60
Each additional comb ..... .40

A health certificate and safe delivery guaranteed. 15% discount to approved dealers 10% down books orders. Balance before shipment.

HESSMER BEE FARM, Hessmer, La.
Willie Roy, owner

New Low Prices for Extra Quality and Service

Pettit Package Bees and Queens

Quantity	Combless Packages Bees with Queens: Twos Each	Threes Each	Fours Each	Fives Each	Extra Queens Each	Queenless Packages Booster Bees: Twos Each	Threes Each	Fours Each	Fives Each
1-11	$2.25	$2.90	$3.55	$4.20	$0.70	$1.55	$2.20	$2.85	$3.50
12-23	2.15	2.75	3.35	3.95	.65	1.50	2.10	2.70	3.30
24-up	2.00	2.55	3.10	3.65	.60	1.40	1.95	2.50	3.05

Cash Before Shipping—Satisfaction Guaranteed

MORLEY PETTIT **ALBANY, GEORGIA, U. S. A.**

What Do You Want in Package Bees?

Here is what you get in Our Special Loose-queen Package

A ready-introduced, laying queen, taken from the same colony from which the bees are shipped.
A queen that has never been "jailed" in the close confinement of a queen cage, is docile, quiet, and contented, and no chance of having been hurt in caging.
Being at liberty in shipping cage, overheating or chilling is safeguarded. There is no agitation or anger among the bees.
All guess-work, errors and mishandling when installing is eliminated.
The nearest approach to a "fool-proof" package on the market today.
Our new booklet tells the story completely. Ask for it, its free.

		Special Loose Queen 2 lb.	Special Loose Queen 3 lb.	Regular caged Queen 2 lb.	Regular caged Queen 3 lb.
Unit Price	@	$2.60	$3.30	$2.45	$3.15
15 to 49	@	2.34	2.97	2.21	2.84
50 and above	@	2.21	2.80	2.08	2.68

Dealers and Associations Discount 15%.

The Puett Company, Hahira, Ga.

XUM

QUEENS 35c

@

26 or more @ 35c
1 to 25 @ 40c
(No Discount)

QUEENS from Progeny Tested Breeders. This is important to you. It makes a lot of difference.

Garon Bee Company, Donaldsonville, La.
Package Bees — Three-Banded Italians

Prices to May 10th 2-Lb. pkgs. with queen,	Prices to May 10th 3-Lb. pkgs. with queen,	In Lots of	Prices after May 10th 2-Lb. pkgs. with queen,	Prices after May 10th 3-lb. pkgs. with queen,
$2.45	$3.15	1- 25	$2.25	$2.95
2.25	2.95	26- 50	2.10	2.80
2.10	2.80	51- 75	2.00	2.70
2.00	2.70	76-100	1.95	2.65
1.95	2.65	101-500	1.91	2.45
1.91	2.45	501- up	1.75	2.30

15% Discount on $2.45 and $3.15

15% Discount on $2.25 and $2.95

Garon Bee Co., Donaldsonville, La.

GASPARD'S

Quality Golden and Three-banded Queens,
Package Bees and Nuclei for Spring 1939 Delivery.

2-lb. package with queen, one frame of brood, each, (Comb Packages with Queens). $2.45
3-lb. package with queen, one frame of brood, each, ... 3.15
4-lb. package with queen, one frame of brood, each, ... 3.85
5-lb. package with queen, one frame of brood, each, ... 4.55
2-lb. package with queen, two frame of brood, each, ... $3.05
3-lb. package with queen, two frame of brood, each, ... 3.65
4-lb. package with queen, two frame of brood, each, ... 4.25
5-lb. package with queen, two frame of brood, each, ... 4.85
2-lb. package with queen, each, (Combless Packages with Queens) $2.45
3-lb. package with queen, each, ... 3.15
4-lb. package with queen, each, ... 3.85
5-lb. package with queen, each, ... 4.55

Untested queens, 75 cents each; tested queens, $1.50 each.
For queenless packages deduct price of queen.
Twenty years' experience in the package-bee business which assures you of prompt and efficient service. Safe delivery and satisfaction guaranteed, and a health certificate with each shipment. Book your order early and reserve shipping date. 5 to 9 packages 5% discount; 10 to 24, 10%; 25 to 49, 15%; 50 to 99, 20%; 100 or more, 25%.
10% will book your order; balance at shipping time.

J. L. GASPARD, Hessmer, La.

FOR SALE

Pure Italian Bees and Queens

Bright Yellow and Three-band Queens, 50c each.

1-lb. of Bees with young Queen, ..$1.25
2-lbs. of Bees with young Queen, .. 1.75
3-lbs. of Bees with young Queen, .. 2.25

We guarantee Bees and prices. Write us what you want and we will satisfy you.

GRAYDON BROS.

Route 2. Greenville, Ala.

THE BEE WORLD—The leading journal in Great Britain, and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamps. Membership in the Club, including subscription to the paper, 10/6. The Apis Club, L. Illingsworth. The Way's End, Foxton, Royston, Herts, England.

ITALIAN BEES AND QUEENS

2-lb. package with queen, ... $2.45
3-lb. package with queen, ... 3.15
Queens, each ..... .75

E. A. CASWELL

4019 Piety St., R.F.D. Rt. 4.
New Orleans, La.

Mack's Queens

They Speak for Themselves

Big — Vigorous — Hardy Northern-bred Italians that have to make good or MACK does

Hundreds of satisfied customers all over U. S. A. have written us as to their Superiority.

You won't go wrong when you use MACK'S Queens.

Price during May 75c each.
After June 1st 50c each.
15% discount to regular dealers and Beekeepers' Associations.

HERMAN McCONNELL
(The Bee & Honey Man)
Robinson Rte. 2. Illinois

MILLER'S QUEENS

25 YEARS A QUEEN BREEDER

Miller's Old Reliable 3-Banded Italian Queens are reared from very young larvae which insures unusual vitality and greatly lessens the chance of supersedure. Our bees have a reputation as the best of honey-gatherers.

Queens, 75c each.

JOHN G. MILLER

723 C St. CORPUS CHRISTI, TEXAS

Norman Bros' Package Bees and Queens

Bright 3-Banded Italians--The Best Kind You Can Buy

REASONS WHY

Superior Quality—Large Supply
Fast Service—Full Weight
Light Shipping Cages
Young Baby Bees
Choice Queens

Safe arrival, satisfaction guaranteed, health certificate furnished. Order now. They will be ready when you want them. No dealer's discount allowed.

PRICES

	1 to 49	50 or more
2-lb. pkg. with queen,	$1.75 ea.	$1.70 ea.
3-lb. pkg. with queen,	2.25 ea.	2.20 ea.
Untested queens, ...	.55 ea.	.50 ea.

Each additional pound bees, 50c.

NORMAN BROS. APIARIES, RAMER, ALABAMA

Pure Italian Queens and Package Bees

You can count on us for perfect packages, full weight, quick service, and good queens. Our colonies are regularly state inspected. We furnish, with all shipments, a clean health certificate.

Prices:	Queens, untested, each	$0.50
	Queens, tested, each	1.00
	2-lb. package with queen	1.75
	3-lb. package with queen	2.25
	2-lb. package without queen	1.25
	3-lb. package without queen	1.75
	Each additional pound bees	.50

—No Discounts—

LUCEDALE APIARIES, **Lucedale, Mississippi**

Indianapolis --- 24-hr. Service

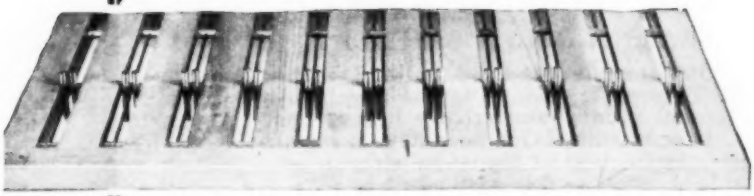
on your order for Bee Supplies

HEADQUARTERS FOR

3-Ply Foundation, Tripe-Locked-Corner Frames, Quality Hives, Sections, Veils, Smokers, etc.

See our 1939 catalog for name of nearest dealer.

A. I. Root Co. of Indianapolis, 121 N. Alabama St.
Indianapolis, Ind.



Send 3 cents for Queen Excluder Tester Guage.

(Wires should be between 159 and 164/1000 of an inch apart.)

The Most Accurate Queen Excluder

ON THE MARKET TODAY

1. Bees prefer to walk on wood.
2. The right bee space is always above and below the wires for free movement among the bees.
3. The spaces between the wires are correct in design and accurate in manufacture.
4. The openings for the bees come directly over the corresponding spaces between the frames and the area of the openings is greater than exists between the frames. The bees thus have spaces enough to pass through the excluder with ease.

See Your Root Dealer

Root QUALITY BEE SUPPLIES

Do You Know?

(1) That the **American Honey Institute** is the only national organization working continuously for the interests of beekeepers?

(2) That the **Institute** is keeping in constant touch with food organizations over the country encouraging them to handle honey?

(3) More than 2000 inquiries regarding honey and bees have been received at the Institute office since Mrs. Grace appeared on the air over a national hook-up January 31 of this year?

(4) That the **Institute** depends solely on contributions from beekeepers and the allied industries for support?

(5) That an increased budget for the Institute will mean a wider publicity for honey?

Help yourself by helping the Institute

Mail checks to

American Honey Institute

Commercial State Bank Building, Madison, Wis.

SPOERRI'S GOLDEN BEES

Large, gentle, and Super-Productive! Original Italian stock but improved and bred up over a long period of years. Every queen is young, powerfully productive, and personally reared. DELIVERY ON TIME!

Queens, postpaid 75c each. 10 and over 70c each.

Packages with queens,	2-lb. size	3 lb. size
1 to 9	$2.45	$3.15
10 to 49	2.25	2.90
50 to 99	2 10	2.75
100 and over	2.00	2.65

Discount to dealers and associations, 1 to 99—15%. 100 and over—20% on unit prices.

Spoerri Apiaries, St. Bernard P. O., La.

When You Want Quality at Low Cost Look For This Sign

KELLEY—
"The Bee Man"

CHUNK HONEY

We now offer a SPECIAL FRAME for the production of chunk comb honey. Send **5 cts.** for a sample frame postpaid.

—SPECIFICATIONS—
End bars—1 ½" wide
Bottom bars—1 1/16" wide
Style—Locked
Price—Low, quality considered

THE WALTER T. KELLEY CO.
Paducah, Ky.
Manufacturers of Bee Supplies.

Jensen's Mid-Season Change-Over Prices

The same High Standard of Quality that has characterized our products for many years, plus every improvement of merit known to the package bee and queen business. Beware of too low quotations, there is usually a reason or reasons for unwarranted price-cutting, irrespective of claims relative to seniority or volume of business. Some things are inconsistent. We want your business on a "live and let live basis." We, like you, are dependent on the bees for a livelihood. We guarantee to give you full value for the money you send us.

Quantities	2-lb. packages with Queens	Queenless	3-lb. packages with Queens	Queenless	Queens Select Untested
1- 10,	$2.10	$1.60	$2.60	$2.10	$0.50
11- 50,	1.95	1.50	2.45	2.00	.45
51-100,	1.85	1.45	2.35	1.95	.40
101- up,	1.75	1.40	2.25	1.90	.35

Dealers 15% off base prices. We produce everything we ship in our own apiaries, they come to you fresh, and ready for the job they are intended for. There is still plenty of time for packages to build up and store a crop. Spring is late, moisture sufficient in most places, and prospects never better. Empty hives make no honey. Wire or Air Mail your order. In many instances we can make shipment next day.

JENSEN'S APIARY CO., Macon, Mississippi

Three-banded Italian Bees and Queens

We know that our customers' success or failure at the end of the season decides whether we will receive your future patronage in bees and queens which is so vital to our existence as shippers of package bees and queens.

Having no other occupation for the past 18 years, and studying your needs from many angles, has, we believe, fitted us to give you quality and service unexcelled by any firm anywhere.

Being situated in the northern part of this state, we cannot supply your needs as early as some firms further South. But around April 10 to 12, we have always had a good supply of dependable queens, and the colonies in the out yards are full of emerging bees that have not worn themselves out storing honey.

Being nearer you, we can save you money on express charges. If you wish to truck your bees, we have this to say: You will have hard-surfaced roads all the way to Shannon. We invite you to come and bring your Inspector, and see a country where FB has never been known.

2-lb. pkg. with queen .....$1.75 3-lb. pkg. with queen $2.25

Queens, 50 cents each. Tested $1.50. For queenless pkgs., deduct price of queen. 5 queens allowed on each 100 pkgs.

15% discount to dealers.

SHAW & HOMAN, Shannon, Miss.

Package Bees and Queens

LEATHER-COLORED ITALIANS

2-lb. package with queen, $2.25; 10 or more, $2.15. Wholesale, $1.75.

3-lb. package with queen, $2.95; 10 or more, $2.85. Wholesale, $2.35.

Untested queens, 65c, 10 or more, 60c; wholesale, 50c. Shipped by fast express. Every guarantee pertaining to package bees and queens. If we don't more than please you, will give you the packages.

GOOCH APIARIES
FARMERSVILLE, TEXAS

DEALERS ATTENTION

We have a special proposition of interest to all dealers or to all beekeepers who wish to become dealers of Beekeepers' Supplies. Write for information. All goods are GUARANTEED SATISFACTORY.

Falcon Quality Products

W. T. Falconer Mfg. Company
Falconer, New York

Our Patented Wired Foundation

is not a cheap substitute or an imitation of something that others have made. We take pride in telling you that this is the best, most practical, and the strongest wired foundation ever made and there is nothing cheap about it but the price. More detailed information will be sent on request.

$42.50 per 100 lbs. Making charges $18.00 per 100 lbs. Metal eyelets @ 35c per 1000 postpaid.

F. KNORR & CO., Del Mar, California

Loose-Queen Packages

2-lb. with queen, ...$2.45
3-lb. with queen, ... 3.15

Safe arrival, satisfaction guaranteed, prompt shipments, our motto.

TAYLOR APIARIES, Luverne, Ala.

Thrifty Bees

We can make immediate shipment of package bees and queens. Forty-seven years' experience assures you of the finest stock of THRIFTY three-banded Italian bees and the best service.

Our combless packages of young, THRIFTY bees will build powerful colonies in time for your honey flow. We guarantee full-weight packages, safe arrival, and satisfaction.

Let us supply you with the package bees and queens you will need.

OUR PRICES WILL SAVE YOU MONEY. OUR BEES WILL PRODUCE MORE HONEY.

Write or wire us today.

W. J. Forehand & Sons

Breeders Since 1892 Fort Deposit, Ala.

Queens 40c

Any Number By Return Mail

Try JOHN A. NORMAN'S pure 3-Band Italian Bees and Queens and BE SURE of getting Pure Stock, prompt service, full weight packages and entire satisfaction. I have the stock, equipment, and experience to furnish you with Hardy, Prolific, Disease-resisting and real Honey-gatherers. Pure mating, safe arrival and satisfaction guaranteed in U. S. and Canada. Packages shipped in light convenient cages well ventilated. Express collect. State Health Certificate furnished. Untested Queens, 40c; Tested Queens, 80c, any number. 2-lb. pkg. with Queen, 1 to 49, $1.75; 50 or more, $1.65; 3-lb. pkg. with Queen, 1 to 49, $2.20; 50 or more, $2.10. 1 Free Queen with every 20 packages ordered.

No Discount Allowed.

John A. Norman

LaPine, Ala. Rt. 2, Box 38.

PATENTS & TRADEMARKS
Williamson & Walton
Munsey Building
Washington, D. C.

BEES and QUEENS

3-Band Italians

Priced as low as they can be produced without sacrificing Quality.

Quantity	Packages with queens 2 lbs.	3 lbs.	Untested Queens any number
1 to 100	$2.00	$2.60	60c each
100 and up	1.90	2.45	

Prices after May 20th

Packages with Queens 2 lbs.	3 lbs.	Untested Queens any number
Any number $1.35	$1.70	35c each

For queenless packages deduct price of queen. Your choice of queens in dry or candy cages. 5% extra queens with orders of 20 or more packages.

No discount on these prices.

Highest Quality, reliable service, full weight young bees and light crating.

Safe arrival and satisfaction guaranteed.

W. O. GIBBS

Brookfield, Ga.

PACKAGE BEES and QUEENS

of Imported strain produced and shipped by

J. G. Rossman, Moultrie, Ga. E. W. Long, Conover, Ohio

ROSSMAN & LONG

P. O. Box 133 Moultrie, Ga.

are sure to please with their outstanding qualities.

HARDY, vigorous bees
RAPID build-up in spring
Long LIVED worker bees
Less inclination to SWARM
GENTLE and easily handled with little smoke
LIVE arrival guaranteed
Service that satisfies
No charge for LOOSE (Introduced laying) QUEEN

2-lb. with queen .....$2.45 each
3-lb. with queen ..... 3.15 each
Queen ..... .75 each

DISCOUNTS

$ 1	to	$ 50	Net
50	to	100	5%
100	to	250	10%
250	to	500	15%
500	to	1000	20%
1000	up		25%

Also nuclei and Domestic stock.

A card will bring our circular and put you on our mailing list.

LOOK! LOOK! LOOK!

Reduced Prices after May 10th

2-lb. pkg. with queen, . . $2.00
3-lb. pkg. with queen, . . 2.60
Queens, ... .50

Less discount of 15% to dealers.

GEO. A. HUMMER & SON

PRAIRIE POINT, MISS.

California Bees and Queens

Most Northern Shippers in California.

Safe arrival guaranteed.

Lower express rates to the North and Northwest.

Quality—None better.

Circular upon request.

Untested Queens: 1-25, 75c; 25-100, 70c; 100 up, 65c.
2-lb. pkg. with queen: 1-10, $2.25; 10-50, $2.00; 50-100, $1.90; 100-500, $1.80
3-lb. pkg. with queen: 1-10, $2.90; 10-50, $2.60; 50-100, $2.50; 100-500, $2.40

Banta & Wire
Los Molinos, Calif.

Better-bred Queens

Three-banded Italians

WHO'S WHO? We do not say we are the only very best shipper but we are numbered with the best. Producing packages and queens is our only business, not farmers and selling bees as a side line. You should investigate.

Our state inspector can tell you.

2-lb. packages with queens, ...$1.75
3-lb. packages with queens, ... 2.25

Queens 50c each, after 15th, 3 for $1.00

Calvert Apiaries, Calvert, Alabama

Peterson's Package Bees, now Ready

ITALIAN OR CAUCASIAN

2-lb. with untested Queen, ...$2.45 3-lb. with untested Queen, ... 3.15
4-lb. with untested Queen, ... 3.85 5-lb. with untested Queen, ... 4.55
Safe delivery guaranteed. Hustling stock. Disease free.

HONEY BEE APIARIES, SANDWICH, ILL.

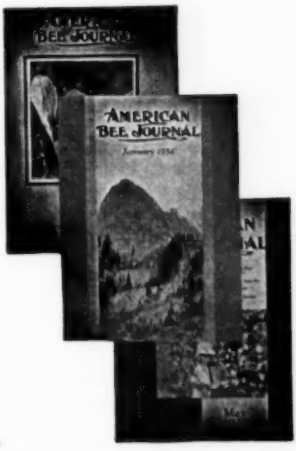
2 Years $1.50

American Bee Journal—monthly: published and edited by beekeepers for beekeepers. Full of pictures and tips on care of bees and selling of honey.

SAMPLE COPY FREE.

$1.00 a year, 2 years $1.50 in U. S. A. and Canada Combined with Gleanings in Bee Culture, both magazines, **ONE YEAR, $1.60.** This offer good only in the United States. Address—

American Bee Journal, Hamilton, Ills.



GET OUR PRICES

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Send in your list of goods wanted.

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We will quote you on the lot.

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Root's goods in Michigan.

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Beeswax wanted.

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M. H. HUNT & SON
LANSING, MICH.

Root QUALITY
BEE SUPPLIES

Thin Super Foundation

Fragrant with the natural aroma of pure beeswax.

High cell walls are quickly drawn out by the bees.

The thin base provides a delicate mid-rib for fine honey.

White as virgin comb.

Ample stocks.

Prompt shipment.

The A. I. Root Co. of Iowa
Council Bluffs, Iowa

MIGRATORY EQUIPMENT

ANCHORAGE EQUIPMENT

Flanagan Supply Company
Box 105,
Wellsville, N. Y.

WHEN WRITING TO ADVERTISERS, MENTION GLEANINGS

It is in the Package

We are putting the value in the package instead of big ads.

2-lb. with queen, $2.45; 3-lb. with queen, $3.15. Untested queens, 75c.

15% Discount to Dealers.

J. M. CUTTS & SONS
R 1. Montgomery, Ala.

SUPERIOR BEES

SUPERIOR SERVICE

Yes, we have a habit of trying to give the best bees, queens, and service at all times, also at reasonable prices. TEST our bees out for yourself and be CONVINCED that they are all we claim them to be. Get our prices at once as we will get your bees off exactly when you want them. NO DELAYS, NO DISAPPOINTMENT when your orders are placed with us.

N. B. Smith & Co., Calhoun, Alabama

PROPOSED FORCED SUPERSEDURE METHOD

(Continued from page 293)

such a colony in a double-brood-chamber hive, during a normal season, should have winter stores in abundance at the close of the main honey flow. This method saves labor in manipulation and eliminates the problem of disposing of the extra body of brood and honey at the beginning of the flow.

This method may also be used on colonies wintered in single brood chamber hives. Some combs of brood with bees may be raised out of a single brood chamber into a third story, and empty combs, or, preferably, combs of honey, used to fill the empty spaces in both brood chambers. However, the method lends itself more naturally to the double brood chamber system.

A Swarm Control Measure

One advantage in using this method is that the raising of the upper brood chamber above an empty super during the spring honey flow, is a swarm control measure, because it relieves congestion in the brood chamber at a time when swarming may occur. We are taking advantage of this swarm control manipulation by making it a method by which a young queen is introduced and starts laying just prior to the beginning of the main honey flow. This method appears to be especially well adapted to regions having sweet clover and alfalfa, where young vigorous queens are needed to stand up under a long drawn-out honey flow.

We hope that beekeepers who still produce comb honey in various sections of the country, may give this method a trial this coming season. This method can also be used in extracted honey production. A number of beekeepers are doubtless using methods similar to this, but may not be using the double brood chamber for comb honey.

If the swarming problem can be solved by this method, the cost of producing honey will be reduced, and this in turn will make possible a wider margin of profit in beekeeping. That is what beekeepers are, or should be interested in.

Don't Chop Your Grass

Shave the ground with **"Marugg Special"** imported, dangel cutting edge scythe. Catalogue free. Address **The Marugg Company,** Dept. B, Tracy City, Tenn.

MAY

Not too late to install packages if they are headed by queens that are properly reared. Our queens are great layers and build up quickly.

Special offer for May

2-lb. pkg. with queen	Queens	3-lb. pkg. with queen
$2.00 ea.	50c ea.	$2.50 ea.

Lots of ten or more packages or queens

2-lb. pkg. with queens	Queens	3-lb. pkg. with queens
$1.75 ea.	40c ea.	$2.25 ea.

We guarantee Pure Mating. No Disease. Safe arrival and satisfaction.

The Crowville Apiaries

Rt. 1. Winnsboro, La.

Queens and Package Bees

CAUCASIANS * ITALIANS

Over 25 Years' Experience.

RIO GRAND VALLEY HEADQUARTERS for TRUCKERS On Weslaco Progresso Highway

Select young laying queens, each $0.75
2-lb. pkg. with young laying queen, ... 2.45
3-lb. pkg. with young laying queen, ... 3.15

EARLY MARCH QUEENS

15% discount to dealers.

Blue Bonnet Apiaries

R. 1. Box 70, Mercedes, Tex.

Italian Package Bees

2-lb. Standard comb package with queen, $2.45
Also combless package, ... 2.45
2-lb. M.D comb package, ... 3.00

J. P. CORONA

P. O. Box 124 Kenner, La.

WHEN WRITING TO ADVERTISERS, MENTION GLEANINGS

XUM

MOISTURE CONTENT OF HONEY

(Continued from page 295)

pany of Canada, Limited, at 119 York Street, Toronto, Canada or the Precision Instrument Co., Box 654, Church Street Annex, New York. It costs $8.00 and is sent complete with instructions for its use.

Gallonage Test

The average beekeeper will have to go by the gallonage test, and when he does he must make sure of a continuous temperature for 24 hours, around 68 to 70 degrees. An exact gallon measure should be used, filled with honey and allowed to stay in a room with a temperature of 68 degrees. After weighing and subtracting the weight of the container, the specific gravity of the honey is determined. The table shown on page 295 will show the percentage of moisture.

The Bubble Test

The bubble test is a quick method of giving an expert a guess, and only a guess, of what the specific gravity of a honey may be. In order to make this test one must see that the temperature of the room has been held at 68 degrees. When the bubble in a given size glass bottle rises slowly or rapidly as the bottle is inverted, it will give an idea of whether the honey is thick or thin and that is all. When a honey of unknown moisture content is compared with another honey of the same source of known moisture content in the same size container, one can get an idea from the size of the bubble and its speed in rising whether the honey to be tested is thicker or thinner than the honey of known moisture content. By turning to "Viscosity", in the A B C and X Y Z of Bee Culture, one will see that the density and viscosity* of a given honey varies almost directly according to the moisture content. But there are exceptions to this. Heather honey, which is one of the standard honeys of Europe, has a high viscosity. The American beekeeper will seldom encounter this.

Where Honey Should be Stored

Honey stored in a damp atmosphere may or may not take on more moisture. Much will depend on the temperature. Honey for storage should be heated to 160° F. to prevent fermentation. Unheated honey, says Wilson, should be kept in an unheated building where the temperature can be kept at 50° F. or less. Comb honey can be kept well at 50 or less but it should under no circumstances be allowed to freeze.

*Density and viscosity are not necessarily the same. The latter will become very fluid on the application of heat of 120° F.

Literature Consulted

Circular No. 24, United States Department of Agriculture, entitled, "United States Grades and Color Standards and Packing Requirements for Honey"; "The Determination of Moisture in Honey", by Dr. H. C. Chataway

Queens

Carefully produced from select three-banded Italian stock.

60c each, any number.
Safe arrival and satisfaction guaranteed.

JOHN C. HOGG
Hahira, Georgia

QUEENS 75c

2-lb. package with queen $2.45
3-lb. package with queen 3.15
15% to dealers.
No order too large, none too small to be appreciated.

OVERBEY APIARIES, Bunkie, La.

EXTRA MONEY

NOW is the best time to see beekeepers about their subscription to Gleanings in Bee Culture.

NOW is the time when they want information on swarm control, supering, etc.

Gleanings in Bee Culture

1 year, $1.00; 2 years, $1.50; 3 years, $2.00.

There is an opportunity for you to solicit subscription and to receive a liberal commission.

Write Circulation Manager
Gleanings in Bee Culture

of the National Research Laboratories, Ottawa, Canada, in the "Beekeeper" (Canada) January, 1933; "Honey Tables Showing the Relationship Between Various Hydrometer Scales and Refractive Index to Moisture Content and Weight per Gallon of Honey", by Dr. H. C. Chataway in the "Canadian Bee Journal", page 215, for 1935; "Thixotrophy and Elastic Recoil in Heather Honey", by J. Price Jones, M.S.C., A.I.C., "Bee World", London, for August, 1936; "Moisture Content of Honey and Nectars", by Dr. O. W. Park, Iowa State Agricultural Experiment Station, Ames, Iowa, in the "Journal of Economic Entomology", Volume 25, No. 4, August, 1934; Same journal, Volume 26, No. 1, February, 1933; "Viscosity of Honey in Relation to Extraction", by P. Risga, B. Sc. A.M., University of Latvia.

"On the Spot"

Ready to fill your orders with genuine Mountain Gray bees and queens. Percent of orders booked to date exceeds last year. We solicit your orders based on our promise and our ability to serve efficiently and satisfactory, with full weight packages of young bees and well-bred young queens.

Prices: 2-lb. pkg. with queen, ...$2.45
3-lb. pkg. with queen, .. . 3.15
Untested queen. ..... .75
15% discount to dealers.

Catalog free. No disease.

Safe arrival guaranteed.

BOLLING BEE CO., Bolling, Ala.

Quality Bred Italian Bees and Queens

Quality, not Price, Makes the Value

Beware and Buy Wisely

Untested young laying queens, ea...$0.75
Tested queens, ea..... 1.50
2-lb. pkgs. bees with caged queens, ea. 2.45
3-lb. pkgs. bees with caged queens, ea. 3.15
4-lb. pkgs. bees with caged queens, ea. 3.85
5-lb. pkgs. bees with caged queens, ea. 4.55
Queenless packages, less price of queens.
DEALER'S DISCOUNT 15%
500 PACKAGES AND UP, 25%
2-lb. pkgs. bees with loose queens, ea. $2.60
3-lb. pkgs. bees with loose queens, ea. 3.30
50 PACKAGES OR MORE 15% DISCOUNT
500 UP 20%

Plenty of bees, queens and good service. Place orders now without further delay. Full weights, safe arrival and satisfaction guaranteed.

YORK BEE COMPANY

Jesup, Georgia, U. S. A.

(The Universal Apiaries)

WAIT!

Why Look Further?

We have them! Imported Stock of Leather-colored Italian Bees. Imported from Northern Italy last season, so that YOU can get as good a bee as can be produced anywhere.

Remember the QUALTY of a bee is the most important part in producing honey, and the DIXIELAND is ready to furnish you with a bee of this quality, with the right price.

2-lb. pkg. with selected queen $2.00
3-lb. pkg. with selected queen 2.50
4-lb. pkg. with selected queen 3.00
Selected queens, each ..... .60

Send us an order NOW. Once we fill your order you will always be satisfied with our prompt service, full weight, low supersedure and safe arrival.

Over 11 year's experience.

You must be satisfied.

Dixieland Apiaries

Greenville, Alabama

Quality Counts

Package Bees and Queens

You are assured full weight packages and young queens when you order from us.
We are ready to supply you with bees from our thrifty three-banded Italian stock, 18 years experience in queen rearing and package shipping.
Health certificate with each shipment. Safe arrival and satisfaction guaranteed. Order now, we ship on date wanted.

PRICES

Mated Italian Queens ...$ .75
2-lb. pkgs. with queens .. 2.45
3-lb. pkgs. with queens .. 3.15
15% discount to dealers

The Ideal Apiaries

DURANT MISS.

XUM

We Offer You

Good Strains of honey-producing bees.

Good Queens, produced by careful men of long experience.

Packages well filled with young bees. No drones.

Service that is the best. Plenty of dependable, experienced help.

Express service that is fast, over direct lines to the North, East, or West.

Italians--Caucasians

2-lb. pkgs. with queen, ea. . . $2.45
3-lb. pkgs. with queen, ea. . . 3.15
Queens, ea. 75

May discounts—10 to 49 10%, 50 or more 15%.

Weaver Apiaries

Navasota, Texas

Italian Bees and Queens

NOW READY

Let Your Order Come

One extra queen with every 20 packages
2-lb. pkgs. with young fertile queen, $1.70
3-lb. pkgs. with young fertile queen, 2.20
4-lb. pkgs. with young fertile queen, 2.70
Untested queen,
1 to 20, 45c; 21 or more, 40c

We have been breeding 3-banded Italian bees for eighteen years and have been shipping all these years to all parts of U. S. and Canada. Ours will please you. Let us prove it to you with our large yellow select 3-banded Italian bees. They are the honey-gathering kind. We ship full weight of baby bees with a young fertile queen in light-weight cages. We are now ready to take your order for packages and queens. Health certificate furnished. Safe arrival and satisfaction guaranteed.

Norman Bee Co.

LaPine, Alabama

Hello Folks

Here We Are Again,

Stevenson's line bred GOLDENS

Some say Goldens are no Good. Their trouble is they have never had Goldens but some other yellow bee. We stand the test with the very best and win. Our being so gentle makes your work pleasant. We fill the hive, then swarm. The queens are large, uniform, strong and prolific. You won't go wrong if you heed our song and order from,

STEVENSONS APIARIES
Westwego, La.

Queens 75c.

1 to 9,	2-lb. with queen,	$2.45	3-lb.	$3.15
10 to 49,	2-lb. with queen,	2.25	3-lb.	2.90
50 to 99,	2-lb. with queen,	2.10	3-lb.	2.75
100 and over,	with queen,	2.00	3-lb.	2.65

To dealers and associations to 100, 15%; over, 20% on unit price.

Figure the Discount

6% on $10.00 orders
8% on $50.00 orders
10% on $100.00 orders
20% to recognized dealers
Additional Discount 5% on orders booked 30 days in advance of shipping date.

PRICES:

Select Laying Italian Queens, each, . . .$ .80
2-lb. pkg. of Bees with Queen, each, . . . 2.60
3-lb. pkg. of Bees with Queen, each, . . . 3.35
Queen-Loose Packages, 15c each extra.

BEST QUALITY and SERVICE. LIVE DELIVERY and SATISFACTION GUARANTEED

Order direct from this ad.

J. F. McVay, Jackson, Alabama

NUCLEI READY

Four combs of bees, brood, and honey and 1939 laying queen, in new ten-frame hive bodies, $3.15 each nuclei. Our hive bodies have a partition through the center, with screen wire top and bottom. (Two nuclei in each hive body.) Can ship any time you say. No disease.

WM. PIEFER & SONS,
Gause, Texas

Package Bees and Queens

Bred for Higher Production.

They will be ready for you when you want them.

R. D. JENKINS, San Benito, Texas

Pure Italian Queens

(NORTHERN - BRED)

An important item in your plans for this year's honey crop is your queen. The queen is responsible for the number of worker bees in the hive for the honey flow. A good rule for the inexperienced beekeeper is to requeen every other year. Book your order now for delivery after June 1.

NORTHERN-BRED ITALIAN QUEENS

(Nice and fresh on arrival)

1 to 10 75c each 11 and over 70c each

The A. I. Root Co., Medina, Ohio

PACKAGE BEES AND QUEENS

Your choice of queen.

CARNIOLAN, CAUCASIAN, ITALIAN

From one package to a truck load will receive our special attention. We take special pride in our ability to fill large orders promptly. A quarter of a century of efficient service, in the same locality, is our record.

My motto through the years: I will expect to do business with you again.

	1 to 49	50 or more
2-lb. package bees with young select laying queen, each	$2.00	$1.75
3-lb. package bees with young select laying queen, each	2.60	2.35

You can pay more but you cannot get better bees or fairer treatment.

H. E. GRAHAM, Cameron, Texas

Shaking Bees Is Hard

on Any Foundation

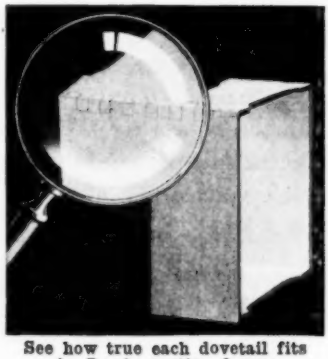
3-PLY foundation stands this severe strain even during extreme hot weather. Let us quote you on 1939 requirements.

Bee Industries, Ltd., Alhambra, Calif.

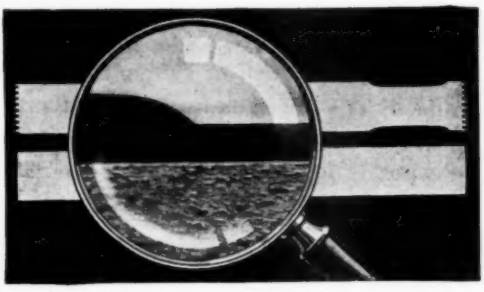
1124 Westminster Ave.,

XUM

Comb Honey



See how true each dovetail fits in Lewis section boxes.



Our new satin finish makes it easier to prepare and sell honey.

Comb honey production is slowly coming back into its own. More producers selling locally find it ideal for house-to-house sales.

Each year of good crops many find it hard to sell their extracted honey at a profitable price, while dozens of customers ask for section comb honey. Long after the housewives have bought all the comb honey available, producers are still trying to sell extracted honey, often without a ready market or good returns in profit.

Resolve now to produce some section honey during 1939. You will make no mistake if you use Lewis sections and Dadant's thin super foundation. This combination looks fine when the bees have finished with it. It will look good to buyers in modern cartons and cellophane wrappers.

LEWIS BEEWARE

STANDARD OF THE BEEKEEPING WORLD

G. B. LEWIS COMPANY

Established 1863

HOME OFFICE AND WORKS WATERTOWN, WISCONSIN, U.S.A.

BRANCHES: ALBANY, N. Y.; LYNCHBURG, VA.; SPRINGFIELD, OHIO; SIOUX CITY, IOWA

O.K.Bee-HiveStand

Raised Off the Ground---
Will Not Blow Over---
Insects Cannot Enter---

All metal—rustproofed, consisting of two side rails, four legs, four felt pads, and the necessary screws and bolts. You assemble the various parts and attach it to the bottom-board of your hive. All parts of the hive bound together with an ordinary piece of bailing wire; legs are driven into the ground to the height you want it; felt pads soaked in oil prevent the entrance of ants or other insects. Postpaid to your door $1.00 each. West of the Rockies $1.25. Special prices to large users.

The Otto Koniġslow Mfġ. Co.

3602 PERKINS AVE. **CLEVELAND, OHIO**

Dealers write for proposition.

Italian Bees and Queens

Breeding Queens Selected from the Famous Northwestern Ohio Clover Belt where we Produce Honey by the carload. Thirty Years' Experience in Northern and Southern States insures you bees and queens of the largest Honey Producing Strain possible

	1 to 9	10 to 24	25 to 49	50 or more
2-pound packages	$2.45	$2.20	$2.05	$1.90
3-pound packages	3.15	2.85	2.70	2.50
4-pound packages	3.85	3.50	3.35	3.15
5-pound packages	4.55	4.15	4.00	3.75
Untested queens	.75	.70	.65	.60
Tested	1.50	1.40	1.30	1.20

For Comb Packages, add 40c to Prices above for each comb. For queenless packages, deduct from Packages the price of queens in quantity. We ship the package with queen introduced, if wanted. This is superior to the so-called loose-queen package. We guarantee these queens introduced 100%. We ship one extra queen or package with each Order of 25 or additional 25.

D. C. JACKSON APIARIES
MOREHEAD APIARIES

FUNSTON, GA., OR CONVOY, O., U. S. A.

XUM

Fresh from Our Yards

Shipped within 24 hours after receipt of your order.

Italian Bees and Queens

If you are in a rush we sometimes can make shipment the same day order is received. One extra queen with every 20 packages. No charge for clipping queens. Safe arrival guaranteed.

2-lb. package with queen $1.75
3-lb. package with queen 2.25
Young laying queens ..... .50
Each additional pound bees .... .50

For loose-queen packages, add 10c per package.

Citronelle Bee Company
Citronelle, Alabama

Treat yourself to the best with

KNIGHT'S

Leather-Colored Italian

Bees and Queens

They are the best honey-gatherers, the best winterers and reasonably gentle.

	1 to 9	10 to 24	25 or more
2-lb. pkgs. with queens,	$2.45	$2.25	$2.00
3-lb. pkgs. with queens,	3.15	2.75	2.50
4-lb. pkgs. with queens,	3.85	3.50	3.00
5-lb. pkgs. with queens,	4.55	4.00	3.50

Queenless packages, deduct 75c. 15% discount to dealers off the unit price. 5% discount to dealers off for 25 and more package price.

QUEENS

Guaranteed mated pure, 1 to 9, 75c; 10 and more, 64c. No charge for clipping. Full-weight packages with young bees and perfect satisfaction guaranteed.

JASPER KNIGHT
HAYNEVILLE, ALA.

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